The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 119, No. 11 — JULY 11, 1942

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CHICAGO, ILLINOIS

TRAUMA OF THE HEART DUE TO NONPENETRATING CHEST INJURIES

REPORT OF CASES WITH RECOVERY OR LONG SURVIVAL

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Trauma of the heart and adjoining structures caused by nonpenetrating injuries to the chest and other parts of the body is often overlooked because of the prevailing idea that the chest wall and the cushion effect of the lungs prevent such trauma. This paper attempts to discard this idea and help establish criteria by which the condition may be recognized.

The heart and adjoining structures are affected much more frequently in the course of bodily injury than the literature would indicate, because only the most serious injuries or cases of fatal involvement appear to attract attention and are recorded. Thus of 197 cases collected from the literature by Warburg [1] up to 1938, there were only 9 survivals for one and one-quarter years or more and in the rest death occurred either immediately or a short time after the accident. Of 168 cases collected from the literature by Bright and Beck,[2] there were only 12 survivals and recoveries. In the remaining cases death occurred soon after the accident. Cases are not reported in which the cardiac injury was mild, because such cases do not yield sufficient clinical signs to attract the attention of the average physician, who is not trained to recognize damage to the cardiovascular system.

It stands to reason that reports such as these are not satisfactory for determining the incidence of cardiac damage in bodily injuries.

EXPERIMENTAL PRODUCTION OF HEART INJURY

Before I discuss the clinical features of traumatic injury to the heart it is of interest to review in brief some of the available experimental studies. Of these, the work of Schlomka,[3] Kulbs and Straus,[4] Bright and Beck [2] and Kissane, Fidler and Koons [5] are the outstanding contributions.

Schlomka applied blows to the chests of rabbits and cats by a small wooden mallet and studied their effects on the cardiovascular system. Some of the animals died during the process from ventricular fibrillation, severe conduction disturbances or failure of the right side of the heart. Most animals survived and showed various electrocardiographic abnormalities as ectopic contractions, conduction disturbances, changes in the electrical axis and in the R-T segment and T wave, the last two of which resembled those of coronary occlusion. There was a drop in the arterial blood pressure and a rise in venous pressure. Acute cardiac dilatation, mainly right ventricular, was observed in many animals soon after the injury and in some later, after the regression of symptoms. Cutting off all nerve connections with the heart before the experiment did not alter the effects of the blow.

The most interesting observation was that postmortem studies of the heart revealed no structural damage in 90 per cent of cases, even in animals that died during the experiment. Only 10 per cent showed some abnormalities, such as small hemorrhages in the myocardium or in the conduction system.

Schlomka concluded that the cardiac manifestations of trauma are due to coronary spasm producing myocardial ischemia. The spasm is caused by the direct effect of the vibratory force on the coronary vessels and not by reflex action.

In other experiments the same author showed that animals sensitized with heterogen serum were more subject to cardiac injury by blows to the chest than were normal animals, and the damage was greater. Coronary spasm evidently is more easily induced under such a state and is more prolonged.

Kulbs and Straus observed that injury to the heart induced by trauma is more apt to occur in animals under the effect of digitalis, thyroxin and epinephrine, which increase the sensitivity of the heart.

Bright and Beck applied direct strokes with a metal dilator to the exposed hearts of 25 dogs. Three died during the experiment—1 of rupture of the heart and 2 of ventricular fibrillation. The rest survived the experiment and showed an increase in the heart rate, a drop in the arterial and a rise in the venous pressure, faint and distant cardiac sounds of the "ticktack" type and swelling, discoloration and extravasation of blood in the myocardium. Half of the dogs showed evidence of blood stained pericardial effusion. Various arrhythmias were observed, and the electrocardiogram showed slurring and notching of the QRS complex, with a high R-T take-off and negative T wave, all of which returned to normal in a few weeks.

At autopsy two or three months after injury the hearts showed scarring of the myocardium in 14 instances. The rest of the hearts showed no trace of injury.

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Dr. George Webb gave the author the privilege of observing patient 3, who was in his surgical service at the Coney Island Hospital; Dr. Hans Gottlieb reviewed some of the foreign literature used as reference.

1. Warburg, Erik: Subacute and Chronic Pericardial and Myocardial Lesions Due to Nonpenetrating Traumatic Injuries, London, Levin & Munksgaard, 1938.
2. Bright, E. F., and Beck, C. S.: Nonpenetrating Wounds of the Heart, Am. Heart J. **10**: 293, 1935.
3. Schlomka, G.: Commotio cordis, Klin. Wchnschr. **12**: 1677, 1933; Influence of Blunt Injuries on Heart in Sensitized Animals: Experimental Studies, Ztschr. f. d. ges. exper. Med. **92**: 522, 1934.
4. Kulbs, F., and Straus, L. H.: Heart and Trauma: Experimental Investigation, Klin. Wchnschr. **11**: 1572-1574, 1932.
5. Kissane, R. W.; Fidler, R. S., and Koons, R. A.: Electrocardiographic Changes Following Injury to Dog, Ann. Int. Med. **11**: 907, 1937.

Kissane, Fidler and Koons did electrocardiographic studies on 15 dogs traumatized by blows on the chest. The most frequent manifestations were changes in the QRS-T segment and in the T wave, which appeared a few minutes to a few hours after the injury. Various arrhythmias were observed and ventricular fibrillation occurred.

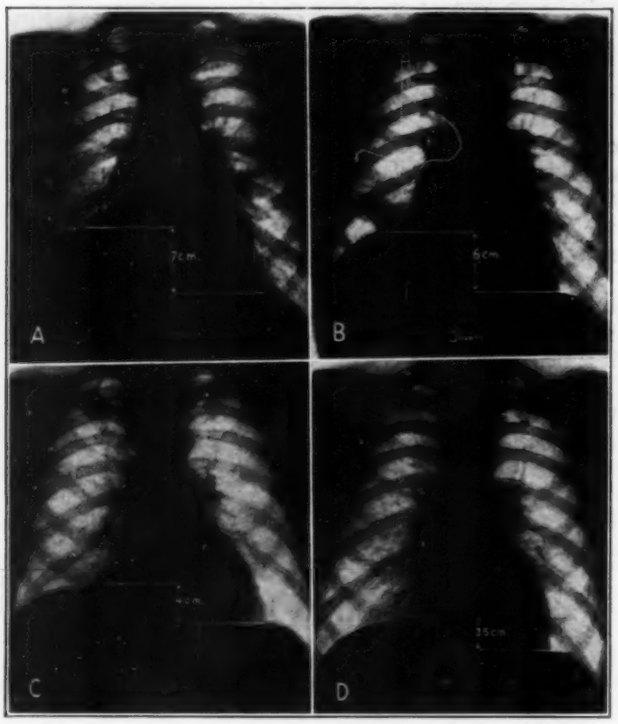

Fig. 1 (case 1).—Chest, *(A)* one week, (B) one month, *(C)* four months and *(D)* one year after the accident. The distance between the right and the left diaphragmatic dome is shown in centimeters.

TYPES OF IMPACTS PRODUCING CARDIAC INJURY IN MAN

The types of blow or impact that may result in cardiac injury in man are (1) direct blow to the chest, especially if applied to the precordial region; (2) compression of the chest in the anteroposterior position by two solid objects; (3) sudden extreme increase in intra-abdominal pressure by external violence; (4) lifting of an extremely heavy object or other severe strain thrown on the body; (5) disturbance of the vagosympathetic system to the heart produced either by direct injury or reflexly.

It must be stressed that it is not the latent force but the velocity of travel of the force when it strikes the body which produces the injury.

Factors which help increase or diminish the effects of the striking force on the heart are:

1. The flexibility and resilience of the thoracic cage. In youth the chest is much more resilient than in advancing age; hence a striking force is more apt to damage the heart in a young than in an old person.

2. The presence of coronary disease in advanced age is a sensitizing factor for the production of cardiac disturbances, if not actual cardiac damage, by comparatively little force.

3. A definite psychoneurotic tendency or vagosympathetic imbalance is a factor that lends itself to greater cardiac disturbances produced by an injury.

STRUCTURAL CARDIOVASCULAR DAMAGE CAUSED BY INJURY

Damage may occur in the pericardium, myocardium, coronary vessels, valves, the great vessels springing from the heart and the adjoining organs, as the lungs and pleurae. In many cases more than one of these structures may be involved. It is interesting to find that, as in experimental animals, some patients who die of cardiac injury show no organic changes on postmortem examination; for example, the instance reported by Deutsch[6] in which a boxer aged 26 died soon after he received a blow to the chest. The autopsy revealed no structural damage of the heart or other organs, death being due, according to the author, to ventricular fibrillation.

Pericardial damage may consist of pericarditis with or without effusion, or of pericardial rupture or of hemopericardium. The last is illustrated by Moullin's case:[7] A man aged 20 was hit over the sternum with a football. A massive hemopericardium developed requiring many aspirations. He made a complete recovery.

Late sequelae of pericardial involvement may be massive constrictive pericarditis, as in the case reported by Glenn.[8] A salesman aged 46 injured his chest in an automobile accident. He was well enough to go to work two months later. Two years after the accident nausea, persistent precordial pain with radiation to the left shoulder, a paradoxical pulse, orthopnea and abnormalities in the electrocardiogram gradually developed. He died a year later. The autopsy revealed a densely adherent pericardium with massive adhesions of the right lung and the diaphragm and narrowing of the lumen of the inferior vena cava. The heart and valves were normal.

Myocardial injuries may be in the form of contusions, lacerations and temporary or prolonged ischemia, with infarction due to transient or permanent involvement of the coronary system respectively.

Myocardial contusions, according to Bright and Beck,[2] may occur frequently. In many cases the damage is overlooked. In some it may result in death, as in the case recently reported by Barber and Osborn.[9] A sailor aged 22 was found in an unconscious state and died in pulmonary edema four hours later. It was learned that a wheel of a loaded 5 ton trailer passed over the back of the thorax. Autopsy showed acute edema of the

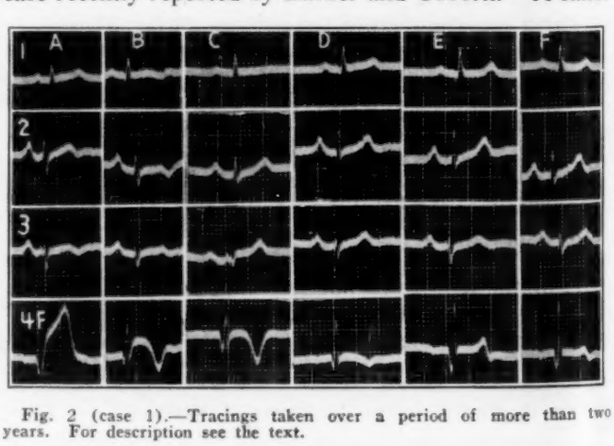

Fig. 2 (case 1).—Tracings taken over a period of more than two years. For description see the text.

6. Deutsch: Wien. Arch. f. inn. Med. **20**: 279-286, 1930.
7. Moullin, C. W. M.: Tr. Clin. Soc., London **30**: 217, 1897.
8. Glenn, E. E.: Traumatic Constrictive Pericarditis, J. Missouri M. A. **37**: 7, 1940.
9. Barber, H., and Osborn, G. R.: Brit. Heart. J. **3**: 127, 1942.

lung and severe contusion of the left ventricle, and many small groups of heart muscle fibers were ruptured. There was no enlargement of the heart and the pericardium was normal.

Lacerations of the myocardium may be partial—not involving the entire thickness of the muscle wall—or complete—the rupture penetrating the entire thickness of the wall. It may involve any of the four chambers. The majority of reported cardiac injuries which result in death consist of rupture of the heart.

In most cases rupture occurs during the accident, and death follows soon after. In some cases, rupture may occur later, as in the case reported by Gunewardene.[10] A boy aged 9 years had his chest compressed against a wall by a cart. He showed no external injuries, felt well and attended school the following day. Ten days later, while playing, he suddenly experienced pain and died instantly. Autopsy showed rupture of the left ventricle.

Rupture of the heart may occur not only from direct violence to the chest but also from a fall from some height, as in the case reported by Howat,[11] or from striking other parts of the body, as the pelvis in the case reported by Saphir.[12] The rupture may occasionally involve the interventricular septum, as in the case reported by Wyschegordzewa [13] and in case 3 of this paper.

Trauma to the coronary vessels resulting in myocardial damage appears to occur frequently, judging from the reported cases in recent literature. In many cases the myocardial damage is presumably due to prolonged coronary angiospasm, as in animal experimentation, since no pathologic changes in the coronary vessels may be found on postmortem examination. The case reports of Fischer [14] and Schwach [15] are examples. In some cases there may be clinical and electrocardiographic evidence of myocardial infarction due to coronary occlusion, as in cases 1 and 4, and in those reported by Kampmann,[16] Kienle [17] and Schmincke.[18] The causes of coronary occlusion may be direct trauma of a coronary vessel, with intravascular thrombosis or compression of a coronary artery by hemorrhage adjacent to the vessel wall, or capillary rupture and intimal hemorrhage in the artery resulting in the thrombosis, as shown by Paterson.[19] The last is more apt to occur in cases of coronary sclerosis, in which a rich capillary network has been observed by Winternitz and his co-workers.[20] It is possible that in some cases showing clinical and electrocardiographic evidence of coronary occlusion the findings are due to localized contusion of the heart muscle rather than to infarction caused by occlusion.

Rupture of valves occurs infrequently. Muller [21] found no such injury in 21 cases of cardiac damage that came to autopsy. Adam,[22] however, collected 14 such cases from the literature. Other cases were reported by Reinbold,[23] Agostoni,[24] Elkin,[25] Barber and Osborn [26] and others. Case 5 in this paper is an example.

Injury to the great vessels may rarely occur and lead to thrombosis. A case of pulmonary artery thrombosis following a thoracic injury is cited by Hart [27] and one of superior vena cava thrombosis by Ochsner and Dixon.[28]

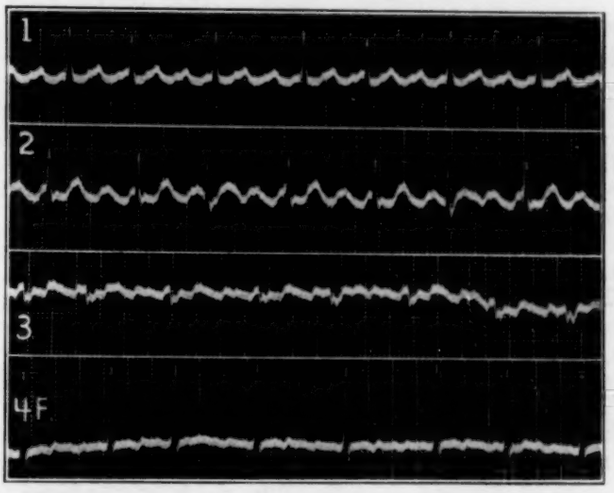

Fig. 3 (case 2).—Auricular flutter; auricular rate about 246, ventricular rate 90 to 110, with a 2: 1 and 3: 1 ratio.

Late effects of cardiac injury that may be observed many months or years after an accident are ventricular aneurysm and calcification of the heart, pericardium and adjoining structures. An example is case 2. Others are reported by Soleil [29] Joachim and Mays [30] and Mille.[31]

CLINICAL MANIFESTATIONS OF CARDIAC INJURY

Injury to the heart may occur without any subjective or objective manifestations. This is especially true if the injury is not severe. If carefully followed, however, even the mild grades of injury may show manifestations by which the injury can be recognized.

The first manifestation, especially if the injury is severe, may be a dazed feeling, dizziness or complete loss of consciousness. This occurs immediately after the injury or later and usually lasts a short time unless the accident is fatal, in which event the patient may never be aroused. This may be followed by mild, vague or dull epigastric or precordial discomfort or pain. Several hours or days later, after a "latent period," the typical anginal syndrome may develop, coming on after excitement or exertion. In some it is preceded by a severe spontaneous attack lasting many hours, due most

10. Gunewardene, H. O.: Brit. M. J. **2:** 942, 1934.
11. Howat, R. Y.: Traumatic Rupture of Heart, Lancet **1:** 1313, 1920.
12. Saphir, Otto: Rupture of Heart by Indirect Trauma in 4 Year Old Boy, Am. J. M. Sc. **173:** 353-357, 1927.
13. Wyschegordzewa: Ztschr. f. Kreislaufforsch. **21:** 649, 1929.
14. Fischer, W.: Indirect Heart Injuries from Gunshot Wound in Attempted Suicide, Ztschr. f. Kreislaufforsch. **24:** 401, 1932.
15. Schwach, W.: Angina Pectoris and Coronary Infarction Following Blunt Injury of Thoracic Wall, Med. Welt **12:** 992, 1938.
16. Kampmann, N.: Ein Fall von Isolierter Verletzung des Herzreitzleitungssystems, München. med. Wchnschr. **82:** 129, 1935.
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18. Schmincke, A.: Beiträge zur traumatischen Aetiologie: I. Arteriosclerosa, Deutsches Arch. f. klin. Med. **149:** 145, 1925.
19. Paterson, J. C.: Capillary Rupture with Internal Hemorrhage as a Causative Factor in Coronary Thrombosis, Arch. Path. **25:** 474 (April) 1938.
20. Winternitz, M. C.; Thomas, R. M., and Le Compte, P. M.: The Biology of Arteriosclerosis, Springfield, Ill., Charles C. Thomas, Publisher, 1938.
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23. Reinbold, P.: Rupture of Aortic Valve from Muscular Effort, Rev. méd. de la Suisse Rom. **38:** 229, 1918.
24. Agostoni, G.: Aortic Insufficiency of Traumatic Origin, Bollettino **13:** 158, 1939.
25. Elkin, D. C.: Traumatic Lesions with Three Cases of Cardiac Contusion, South. M. J. **28:** 4, 1935.
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27. Hart, D.: Traumatic Injuries of Thorax, J. South Carolina M. A. **34:** 175, 1938.
28. Ochsner, Alton, and Dixon, J. L.: Superior Vena Cava Thrombosis, J. Thoracic Surg. **5:** 641, 1936.
29. Soleil, B.: Pleurocardiac Calcification of Traumatic Origin, Bull. et mém. Soc. de radiol. méd. de France **24:** 421, 1936.
30. Joachim, H., and Mays, A. T.: Case of Cardiac Aneurysm Probably of Traumatic Origin, Am. Heart J. **2:** 682-686, 1927.
31. Mille, Joel: Intrapulmonary Calcification Resembling Cluster of Grapes Twenty-Five Years After Serious Trauma, Acta. radiol. **18:** 552, 1937.

likely to an occlusive process or to infarction caused by persistent angiospasm. In addition to or instead of pain there may be substernal oppression, choking sensation or extreme weakness, associated with cold, clammy perspiration. The anginal syndrome may recur thereafter for many months or years, as in case 4.

Kohn [32] was the first to call attention to so-called traumatic angina pectoris, although other writers before him reported cases which conform to the description. Recently several cases were reported by Barber,[33] Campbell [34] and Boas.[35]

Next to the anginal syndrome, dyspnea is the most frequent symptom. This usually occurs only on exertion if the damage to the heart is not severe. If damage is severe or if massive pericardial effusion is present, dyspnea may occur even at rest.

Other complaints may be cough, palpitation, a "fluttering" feeling, weakness, nausea and even vomiting. These are more apt to occur if any type of tachycardia or arrhythmia develops.

appear with recovery, or they may persist in greater or less degree, especially if valvular damage has occurred.

Of the various arrhythmias, the ectopic contractions, auricular fibrillation, auricular flutter and those caused by heart block have been reported and have also been observed by me. These arrhythmias may occur at times in the absence of demonstrable cardiac damage and may be induced by injuries which could not conceivably produce such damage. Thus auricular fibrillation was observed by Sigler and Schneider [36] and by Hay and Jones [37] after such a remote cardiac insult as that caused by electric shock. The various arrhythmias may develop immediately or a long time after the accident.

The electrocardiographic changes observed are similar to those seen in experimental animals previously discussed. Besides the various arrhythmias, and various degrees of auriculoventricular block, abnormalities in the QRS complex, in the QRS-T segment and in the T wave may occur. The changes are usually progressive and may be exactly like those seen in infarcts

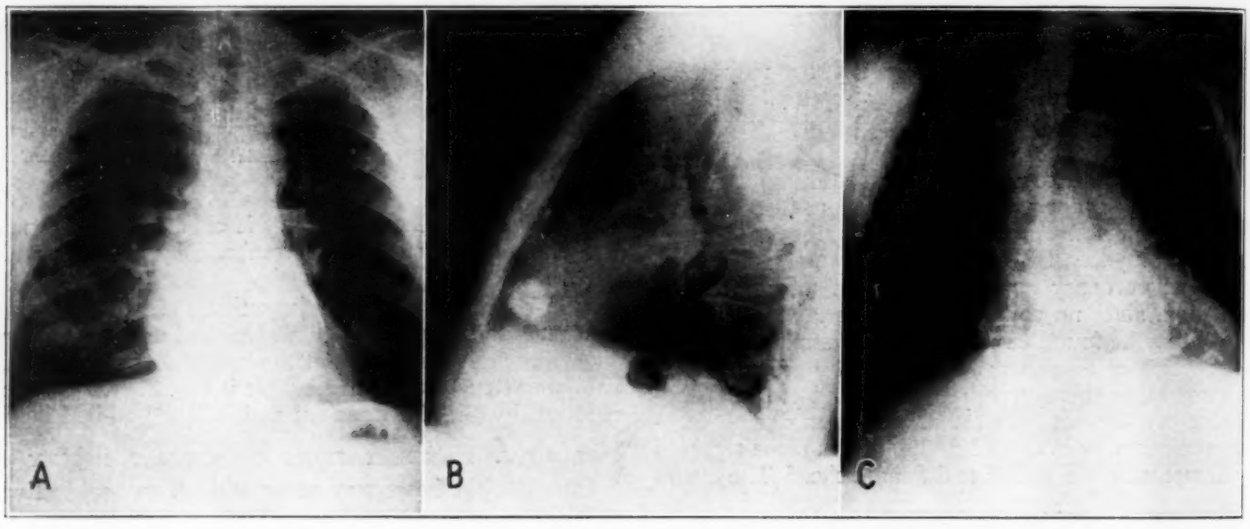

Fig. 4 (case 2).—*A*, anteroposterior view, *B*, left lateral view, and *C*, right oblique view. Areas of calcification are shown by the white patches and streaks in the heart shadow. There is a moderate cardiac enlargement, mainly to the left.

The objective manifestations that may appear a short time after the accident are circulatory collapse, characterized by a rapid and thready pulse, a drop in blood pressure, pallor, and cold, clammy perspiration. A rise in temperature and an increase in the leukocyte count and in the rate of sedimentation of the blood cells may also occur in the cases of severe involvement within a day or two after the accident or later.

The area of cardiac dulness and its shadow on the roentgenogram may remain perfectly normal throughout the period of damage. This is true especially if pericardial effusion is not present. In some cases this area becomes enlarged, owing to pericardial effusion or to cardiac dilatation. The first sound may be shortened, muffled, weakened or greatly diminished in intensity and at times hardly audible. A gallop rhythm, as well as a pericardial friction rub, may appear and persist at times many days. Endocardial murmurs may develop which vary in intensity, quality, location and radiation, depending on the site of structural damage. These may disin the anterior or posterior wall of the left ventricle, which they may indeed represent. Examples are shown in figures 2, 5 and 7 and in the reports of Kampmann,[16] Kienle [17] and others.

The diagnosis of trauma of the heart should not be difficult to make if one bears the condition in mind and if each case of bodily injury is submitted to repeated search for active signs and symptoms of cardiac disease and electrocardiographic changes. Heart disease due to other causes must be ruled out in every case.

REPORT OF CASES

CASE 1.—A white man aged 47, an electrician, was beaten up by gangsters to the point of unconsciousness. When he regained consciousness he complained of slight pain in the chest and various parts of the body. Two days later the pain suddenly became severe and was associated with pallor, cold clammy perspiration and a drop in blood pressure. The following day there was an elevation in temperature to 102 F., a moderate leukocytosis and an increase of the blood cell sedimentation rate. His family and his past personal history were negative. He had never had heart disease before nor any condition which would predispose to such disease.

32. Kohn, H.: Angina Pectoris und Unfall, Klin. Wchnschr. **8**: 795 and 843, 1929.
33. Barber, Hugh: Trauma of the Heart, Brit. M. J. **1**: 433, 1938.
34. Campbell, M.: Angina Pectoris Following a Crushing Accident, Brit. Heart J. **1**: 177, 1939.
35. Boas, E. P.: Angina Pectoris and Cardiac Infarction from Trauma or Unusual Effort, J. A. M. A. **112**: 1187, 1939.
36. Sigler, L. H., and Schneider, J. J.: Electrocardiographic Changes in a Case of Electric Shock, Am. Heart J. **11**: 236, 1936.
37. Hay, J., and Jones, H. W.: Brit. M. J. **1**: 559, 1927.

I saw him in consultation with his family physician, Dr. Eli Eisenberg, about one week after the accident. At that time he showed no evidence of injury to the chest wall or other superficial evidence except for slight ecchymosis of the lids. The rate was 77 beats a minute and the rhythm regular. The first sound was somewhat muffled and the pulmonic second sound greatly accentuated. Murmurs were not heard. The lungs showed absent breath sounds and flatness from about the sixth rib downward posteriorly and at a corresponding level anteriorly and laterally, and there was diminished mobility of the chest wall in that region during respiration. The abdomen, pelvis and extremities were normal.

My impression was that he had sustained an injury to the heart, and in view of the pulmonary findings I considered in addition the presence of pulmonary atelectasis of the lower lobe of the right lung caused by bronchial occlusion due to hemorrhage.

His symptoms gradually subsided, and there was a progressive increase in the expansion of the lower lobe of the right lung and improvement in the character of the first heart sounds. A slight cough with very slight bloody expectoration continued for about three months, at the end of which time expansion of the lung had definitely increased. At the end of one year he had completely recovered.

The electrocardiographic tracings speak for progressive changes due to myocardial infarction, involving mainly the anterior wall of the left ventricle but also partly the posterior wall.

CASE 2.—A white man aged 44, a plasterer, fell off a scaffold and hit the left precordial region against his right fist, which was pinned between his chest and the ground. He was unconscious for about five minutes. When aroused, he complained of extreme weakness and some precordial pain but managed to finish his day's work.

Toward evening the pain became severe and the weakness more pronounced. He was treated by a physician for about six months for a supposed injury to the chest wall and left shoulder, the physician not realizing that there was damage to the heart. Gradually the pain and weakness greatly subsided but would appear when the patient walked two or three blocks or up one flight of stairs. This persisted for about three and one-half years, when one day a spontaneous attack of extreme weakness and severe palpitation suddenly developed. He was removed to a hospital at which he stayed thirty-one days.

The report submitted to me from that hospital was that "repeated readings (electrocardiogram) consistently show auricular flutter, auricular rate at 250; ventricular rate from 55 to 136." The hospital diagnosis was coronary thrombosis, which was most likely based on the symptoms, for no mention was made in the report of other clinical or electrocardiographic changes that would substantiate this diagnosis.

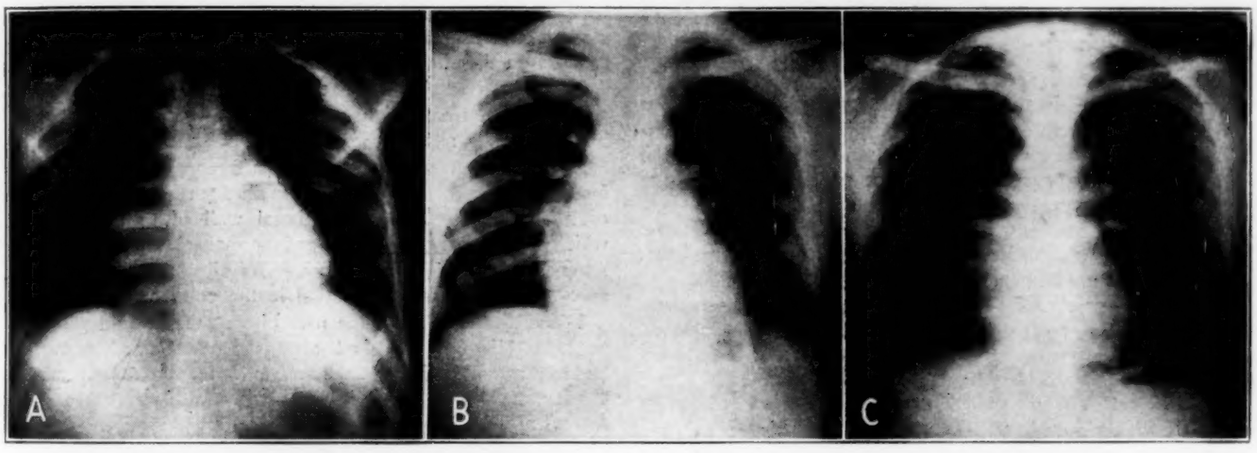

Fig. 5 (case 3).—Chest *(A)* two weeks, *(B)* five weeks and *(C)* three and one-half months after the accident.

Figure 1 shows four roentgen views obtained one week, one month, four months and one year respectively after the accident. None show any increase in the size of the heart. The right dome of the diaphragm is definitely higher than the left in *A* and in a somewhat less degree in *B*, where a triangular area of opacity is seen representing atelectasis of the right middle lobe, which is apparently beginning to expand. In view *C* the right dome of the diaphragm is much lower and the area of opacity is not seen. In view *D* the right diaphragmatic dome is at approximately a normal level. Figure 2 shows six electrocardiographic tracings obtained between one week and twenty-six months after the accident. In *A*, obtained one week after the accident, the QRS complex is of low voltage in all standard leads and the T wave is diphasic in the second lead and negative in the third. The precordial lead 4 shows a negative QRS deflection, with the absence of an R wave, and there is a high QRS-T take-off. In *B*, obtained one month later, the T wave is negative in the first, second and fourth leads, and there are some changes in the QRS complex, with elevation and coving of the QRS-T segment in the fourth lead. In *C*, obtained two months later, the T wave in the first lead is slightly positive, while in the fourth it is still definitely negative, but the QRS-T segment in the latter now approaches the isoelectric level. In *D*, obtained about six months after *C*, the T wave in the standard leads is normal while in the fourth lead it is still slightly negative. The QRS complex in all leads has increased in voltage. In *E* and *F*, obtained about ten and seventeen months respectively after *D*, the T wave in the fourth lead is somewhat diphasic.

Following his discharge from the hospital the symptoms persisted and he had an occasional fainting sensation. The dyspnea and palpitation became more severe from time to time. On one occasion he was admitted to the Coney Island Hospital, where he stayed several weeks, during which time repeated electrocardiograms showed auricular flutter with a variable 2:1 and 3:1 ratio, as in figure 3.

Teleroentgenograms in the anteroposterior, right oblique and left lateral positions are shown in figure 4, all views of which show areas of calcification in the heart muscle and pericardium. I had seen the patient in consultation on and off for a period of about thirteen months since the onset of auricular flutter, and each time flutter persisted. More than two years later I was told that he was in a veterans hospital, that the flutter still persisted and that he presented significant myocardial failure.

There was no history of heart disease previous to the accident or of any other illness which might have predisposed to such disease. The only sickness that he had had was pneumonia, fourteen years before the accident, from which he had fully recovered with no sequelae. He always worked hard before the accident and never had any complaints.

Not at any time after the accident was there clinical or roentgen evidence of fracture of any of the bones of the chest or any other injury to the chest wall.

This case, then, may be considered one of contusion of the heart and pericardium resulting in the anginal syndrome. Gradual calcification of the myocardium and pericardium occurred and resulted in the onset of auricular flutter about three and one-half years after the accident, when calcification reached a degree sufficient to produce irritation of the auricles. The subsequent downward course was due to persistent auricular flutter, which lasted about two years and at this writing is still continuing.

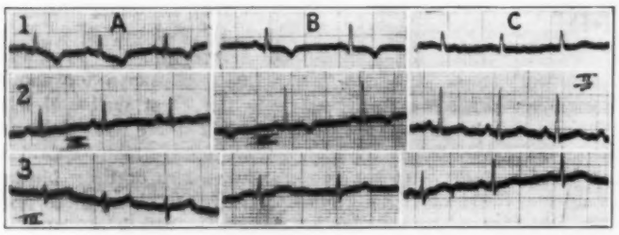

Fig. 6 (case 3).—*A*, one month after the accident: The T wave is negative in the first and second lead. *B*, two weeks after *A*: The T wave is more negative in the second lead and the QRS voltage is somewhat higher in all leads. *C*, four months after the accident: The T waves in the first and second lead are positive but the voltage is low in the former. The tracing is approaching the normal.

Case 3.—A youth aged 21, a salesman, while driving his automobile collided with a street stanchion and was thrown against the steering wheel and the windshield. He was momentarily unconscious and when aroused complained of pain in the sternal region. He was admitted to the service of Dr. George Webb at the Coney Island Hospital.

His family and his previous personal history were negative. He had had no heart disease before nor any other condition that would produce heart disease.

On admission he was fairly well oriented. His heart rate was 120 a minute, the pulse was of poor quality and his blood pressure was 82 systolic and 64 diastolic. Several teeth were broken and there was bleeding from the lips.

The following day the shock became more severe, the pulse was very weak, the blood pressure was unobtainable and the heart sounds were inaudible. Neurologically he showed horizontal nystagmus, definite engorgement of the retinal vessels, nuchal rigidity, a moderate Kernig sign, absence of abdominal reflexes and bilateral Oppenheim reflexes. All deep reflexes were depressed. He showed extreme confusion and disorientation. A diagnosis of multiple cerebral hemorrhage was made, but the spinal fluid was under normal pressure and showed no abnormal conditions.

His cerebral symptoms gradually improved. The precordial pain, however, persisted. Examination six days after admission revealed the heart to be of normal size, the rate 115 a minute and the rhythm regular. The first sound at the apex was accentuated, as was the second sound at the base. There was a short presystolic gallop rhythm and a long soft systolic murmur heard between the third left costosternal junction and the apex.

The temperature reached a maximum of 103 F. about ten days later. Dyspnea became severe. The heart progressively increased in size. A pericardial friction rub developed about fourteen days after admission and lasted three weeks, its maximum intensity being over the midsternum. The signs and symptoms gradually began to subside and complete clinical recovery occurred about four months after the accident. His heart remained slightly enlarged to the right, as shown in figure 5 *C*, but the sounds were of good quality, and a short soft systolic murmur was heard over the left sternal border in the third interspace.

Electrocardiograms obtained one month, six weeks and four months after the accident are shown in *A*, *B* and *C* respectively of figure 6. The T wave was negative in the second and third leads in *A* and *B* and returned to nearly normal in *C*.

Roentgenograms of the chest obtained about two weeks, five weeks and three and one-half months after the accident are shown in figure 5 *A*, *B* and *C*, respectively. The heart shadow is definitely enlarged in *A*, with a suggestion of the presence of pericardial effusion. In *B*, the shadow has greatly receded, but considerable enlargement is still present to the right. In *C*, the transverse shadow of the heart bears a normal relationship to the transverse diameter of the chest, but there is some bulging of the right border.

I was informed four years after the accident that the patient's health was good and that he had no complaints.

This is a case, then, of severe myocardial contusion, pericarditis with effusion and possible rupture of the intraventricular septum, following an accident, without injury to the chest wall.

Case 4.—A man aged 52, a theater manager, while walking to the moving picture operator's booth in a dark corridor tripped against a stack of reels and fell to the floor. He was unconscious for some time, and when consciousness returned he complained of severe pain in the left shoulder and in the right ankle. He was removed to a hospital in severe shock, and there a fracture of the right fibula was found. An electrocardiogram taken later showed myocardial infarction.

Since then he has been subject to recurring attacks of retrosternal pain radiating to the left arm and epigastrium, which appears on the slightest exertion.

The heart is of normal size and shape, and rhythm is always regular. The first heart sound is diminished in intensity. The lungs show no abnormality.

Repeated electrocardiograms taken over a period of eighteen months, three of which are shown in figure 7, reveal evidence of infarction in the posterior basal wall of the left ventricle which is evidently organized and permanent. There is a persistence of the Q_3T_3 type of waves of almost the same appearance, except for slight variation in the voltage of the T wave.

There was nothing in the past history that would predispose to heart disease. He had always worked hard and never had any complaints before the accident. He has some peripheral arteriosclerosis, and it is likely that he had antecedent coronary sclerosis, although he had never had the anginal syndrome before.

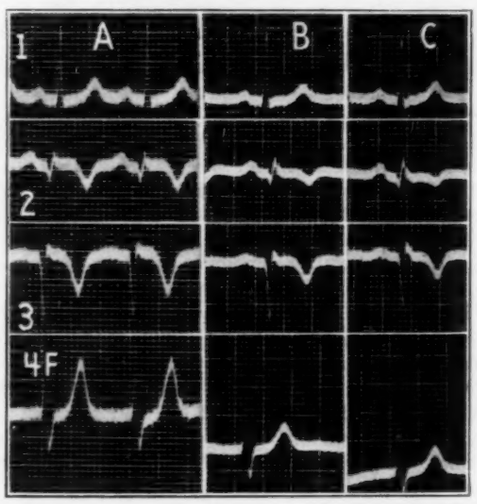

Fig. 7 (case 4).—*A*, about four weeks after the accident, showing Q_3T_3 type of complex. The R-T segment in the second and third leads is slightly elevated. *B*, about seven months after the accident. The T wave is less negative in the second and third leads, and less positive in the fourth lead, which would indicate some improvement in the cardiac condition. *C*, about twenty months after the accident. The tracings are practically identical with those of *B*, except for the T wave in the second lead, which is slightly less negative.

At the present writing, about nineteen months after the accident, he is still subject to the anginal syndrome.

The case, then, is one of infarction of the posterior wall of the left ventricle caused by injury to the heart. The infarction was undoubtedly due to coronary artery thrombosis which was precipitated by the injury.

CASE 5.—A man aged 39, while carrying a ladder with another person through a passageway, was thrown against an iron fence when a heavy gate was unhinged and fell on the patient, the full weight of the gate pressing on his back. Sharp precordial pain soon developed which radiated to the back, and he was obliged to quit work. Since then the pain would come on after comparatively slight exertion and would be associated at times with palpitation.

I had seen him about five months after the accident, when there was a soft diastolic murmur at the third left interspace close to the sternum which radiated to the apex and to the second right interspace. There was some left ventricular enlargement and the ascending aorta showed a slight bulge fluoroscopically.

There was no history of syphilis and the blood serologic reaction was negative. There was no history of rheumatic fever or any other disease that might predispose to the aortic insufficiency which the findings indicated. His age would rule out arteriosclerosis as a possible etiologic factor, and there was no evidence of arteriosclerotic changes in the palpable vessels and in the visible vessels in the retina. Just before the accident he had passed an examination for life insurance.

An interesting feature observed the first time that I examined him was that his blood pressure was normal, being 118 systolic and 70 diastolic, with a pulse pressure of 48. This is a very unusual finding in aortic insufficiency. About one year later, however, his blood pressure was 150 systolic and 68 diastolic, with a pulse pressure of 82, which is commonly seen in this condition. The ascending part of the aorta on this examination showed greater dilatation, and a systolic murmur was heard in addition to the diastolic murmur previously found. The size of the left ventricle likewise has increased.

The rapid progression of signs further substantiated the diagnosis of traumatic damage to the aortic valve with the onset of aortic insufficiency. Early some of the characteristic features were absent, and it was only after the persistence of the condition for about one and one-half years that all features developed.

SUMMARY

Trauma of the heart and the adjoining structures caused by blows to the chest or to distant parts of the body occurs much more often than the literature would indicate. This paper describes briefly the results of the available experimental work on the subject, the types of force that may produce cardiac injury in man and the resulting forms of injury. The symptom complex and electrocardiographic manifestations of cardiac injury are briefly described. Emphasis is placed on the importance of bearing in mind the possibility that trauma of the heart may occur in any bodily injury and such patients be subjected to frequent cardiac examinations, including repeated electrocardiographic studies.

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An Intellectual Challenge.—There are supposed to be 635,013,559,600 possible bridge hands that any one person might have dealt to him. And even if he should, in a lifetime of bridge playing, hold the same hand twice, the other three hands would be different and anyway he wouldn't remember the first time. Hence, every bridge hand and every bridge situation is different and absolutely new, whereas in chess or checkers, for example, each game starts with the identical situation. It is this inexhaustible newness of situations which provides bridge with one of its chief appeals—an intellectual challenge.—Knight, Robert P.: Contract Bridge, *Bull. Menninger Clin.* **6**:68 (May) 1942.

HEAD INJURIES

A NEW TREATMENT FOR POSTCONCUSSIONAL HEADACHES AND DIZZINESS; PRELIMINARY REPORT

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The postconcussional syndrome is being recognized more and more frequently as an oft occurring sequela of a concussion of the brain. It is usually characterized by a triad of symptoms which includes headache, dizziness and emotional disturbances. To gain a clear conception of this common condition it is first necessary to define concussion. One of the better definitions of concussion was presented by Strauss and Savitsky [1] as "a series of events resulting from a blow to the head severe enough to cause disruption of intracranial equilibrium." This statement is broad enough to allow for many of the theories of its pathophysiology.[2]

A general discussion of this disorder and its treatment seems timely, since undoubtedly there will soon be many more patients with this condition owing to the increased frequency of concussion resulting from war injuries. Unfortunately a great number of these patients are labeled neurotic. This is because psychogenic factors very frequently complicate the clinical picture if social or economic factors persist too long. Therefore any treatment which speeds recovery tends to eliminate the development of psychogenic factors.

PATHOLOGY

Neurosurgeons [3] have repeatedly reported that during an operation with the patient under local anesthesia no pain is felt except when certain well defined areas are touched. McNaughton [4] proved this to be the case. He found that some of the arteries, especially the middle meningeal, carry with them a plexus of nerves which when stimulated gives rise to the sensation of pain. The dura mater is insensitive to pressure, traction, heat and electrical stimulation except in a few small areas. The dural sinuses and cerebral arteries are similarly constituted, and the brain tissue is devoid of sensation.

The pathologic changes involved in this syndrome are not very clear. A number of investigators believe the disorder is primarily on an organic basis, whereas equally competent observers advance indisputable evidence of its being a pathophysiologic derangement. Penfield [5] has hypothesized that the development of dural adhesions is the basic cause of the symptoms. He has actually demonstrated in a number of cases thin adhesions in the subdural space overlying the cerebral hemisphere. Histologically these lesions are composed of a thin layer of blood undergoing the process of organization and adherent to the arachnoid as well as to the dura. When pressure was applied by means of a curved instrument on the under surface of the dura during the course of an operation under

1. Strauss, J., and Savitsky, N.: Head Injuries, Arch. Neurol. **31**: 893, 1934.
2. Denny-Brown, D., and Russell, W. R.: Experimental Cerebral Concussion, J. Physiol. **99**: 153, 1940.
3. Penfield, Wilder: Chronic Meningeal (Post-Traumatic) Headache and Its Specific Treatment by Lumbar Air Insufflation, Surg., Gynec. & Obst. **45**: 727, 1927.
4. McNaughton, F. L.: The Innervation of the Intracranial Blood Vessels and Dural Sinuses, Proc. A. Res. Nerv. & Ment. Dis. **18**: 178, 1937.
5. Penfield, Wilder, and Norcross, N. C.: Subdural Traction and Posttraumatic Headache: Study of Pathology and Therapeusis, Arch. Neurol. & Psychiat. **36**: 75 (July) 1936.

local anesthesia, the patient complained of a head pain of the same character as the chronic headache of the postconcussional syndrome. Apparently the exciting agent may be either constant traction or pressure on a sensitive area in the under surface of the dura. Penfield further believes that during the actual trauma the brain is temporarily "knocked out" of position by the blow, and when the normal relationship is restored traction adhesions are formed. It was these findings which prompted him to adopt lumbar air insufflation as the treatment of choice.

at least an important if not a dominant role in this symptom complex, even though the organic changes are the exciting cause.

DIAGNOSIS

Postconcussional headache is localized and may be aggravated by stooping, straining, looking upward and even at times by a change in the weather. Work may actually make such a headache worse. The severity of the injury is of no importance in diagnosis, since a very minor blow with no ensuing loss of consciousness may lead to a particularly vicious type of chronic headache. Questionable cases, especially those in which there is a possibility of compensation, could be submitted to pneumoencephalography. Objective neurologic signs are usually absent in the uncomplicated syndrome, although the presence of cysts or adhesions may produce localizing signs. It is significant, however, that nystagmus is often present, for it is a measurable sign.

Relief of Postconcussional Headaches and Dizziness by Administration of Prostigmine *

Patient, Sex and Age	Weeks Since Original Injury	Symptoms				Examination				Weeks of Prostigmine Therapy	Other Therapy	Course
		Headache	Dizziness	Emotional Instability	Tinnitus	Ocular Fundus	Vision	Nystagmus	Caloric Tests			
J. A. ♂, 45	2	Yes	Constant; worse on change of position	No	No	Normal	Normal	Yes	Prolonged reaction on right	6	Potassium iodide and vitamin B complex before prostigmine	Rapid recovery with improvement almost at once; no recurrence 6 months after cessation of therapy
G. H. ♂, 7	18	No	Yes	Yes	No	Normal	Normal	Bilateral; more on right	Prolonged reaction	1	None	Therapy discontinued after 1 week, with complete relief of symptoms; no recurrence in 6 weeks
J. G. ♂, 48	104	No	2 yr.	No	No	Normal	Presbyopia	Lateral and poorly sustained	Prolonged reaction	1	None	Complete relief of symptoms within 1 week; no recurrence 6 weeks after
A. J. A. ♀, 34	5	No	Very pronounced	No	No	Normal	Slight refractive error	Bilateral; rotary spontaneous	Prolonged reaction	3½	Potassium iodide before prostigmine	Gradual improvement, with ultimate complete relief; no recurrence in 4 wk.
G. B. ♂, 24	12	Yes	Yes	Yes	No	Normal	Normal	Bilateral; rotary spontaneous	Prolonged reaction	3	None	Relief of all symptoms except emotional instability, which has persisted
B. M. ♂, 38	4	Yes	Yes	Yes	No	Normal	Normal	Spontaneous rotary	Prolonged reaction	7	None	Gradual diminution of symptoms; excessive fluids still precipitated symptoms after 2 months
J. F. ♀, 32	5	Yes	Yes	No	Yes	Normal	Normal	Spontaneous rotary	Prolonged reaction	2½	Potassium iodide before prostigmine	Gradual improvement, with no recurrence 3 months after therapy discontinued
R. T. ♀, 24	12	No	No	No	Yes	Normal	.....	None	.....	6	None	Gradual improvement and ultimate complete recovery
M. B. ♀, 25	20	Yes	Yes	No	No	Normal	Normal	None	Normal	5	None	Complete relief of symptoms
L. M. ♂, 16	11	Yes	Yes	Yes	No	Normal	Normal	Spontaneous lateral	Prolonged reaction	2	None	Complete relief of symptoms; no recurrence in 4 weeks

* In each case 1 cc. of prostigmine methylsulfate 1:2,000 was given intramuscularly twice weekly and a 15 mg. prostigmine bromide tablet was given orally three times daily.

Zacks [6] presents adequate proof that there are degenerative changes in the cells themselves which bring about an altered physiologic state. He and others believe it possible and even probable that there is a change in the irritability of the vasodilators and vasoconstrictors with resultant areas of localized altered circulation. Glaser [7] concurs in this theory but adds that these changes are transient and may be actively reversible. Courville [8] suggests that the mental changes often seen as part of this condition are primarily vasomotor phenomena. I am presenting additional evidence that such vascular pathophysiologic changes play

THERAPY

The treatment of this condition has heretofore been either unsatisfactory or complicated and extensive.[9] The usual sedatives have but little lasting effect on the headache or dizziness. Penfield [3] in 1927 developed the procedure of lumbar air insufflation, which was and

6. Zacks, M. A.: Importance of Vestibular Findings Following Injury to the Head, Arch. Otolaryng. **30**: 601 (Oct.) 1939.
7. Glaser, M. A.: The Cause of Deafness in Head Injuries: A Vestibular Test Study in Sixty-Six Patients, Ann. Otol., Rhin. & Laryng. **46**: 387, 1937.
8. Courville, B.: Pathology of Central Nervous System, Pacific Press Publishing Association, 1937.
9. Wechsler, I. S.: Complications and Sequelae of Head Injuries, Bull. Menninger Clin. **1**: 10, 1936; A Textbook of Clinical Neurology, ed. 4, revised, Philadelphia, W. B. Saunders Company, 1940.

still is employed by a number of clinicians. The purpose is to have the air "break up" the subdural adhesions.[10] In a certain percentage of cases in which the disorder is particularly obstinate Penfield advised bilateral trephination with mechanical disruption of the offending membranes.

Brahdy [11] recently presented a series of 6 cases in which he tried the effect of ergotamine tartrate, without help.

It may thus readily be seen that there is a definite place for any preparation which can be simply administered and yet relieve the distressing symptoms of this common disorder. Neurosurgical therapy, which has heretofore offered the best means of alleviation of pain, is not always readily available and, even if it were, could not be successfully adapted in every case. With these shortcomings in mind, I proceeded to search for a simpler but efficient method. Knowing the vasodilating effect of prostigmine and believing that in many of these cases the disorder was on the basis of a disturbed vascular physiologic change, I decided to treat a number of suitable cases with this synthetic autonomic drug. Two of the more typical cases are herewith described, and the summaries of the other cases are presented in outline form in the accompanying table.

In the course of the examination of the patients under discussion the following objective signs were relied on in evaluating the amount of labyrinthine vertigo present in any particular case: (1) spontaneous nystagmus with the patient's head extended backward, to the right and to the left; (2) nystagmus after quick movements of the head; (3) caloric tests,[12] and (4) ophthalmic examination.

REPORT OF CASES

CASE 1.—Peter S., aged 40, first seen on April 20, 1940, gave a history of having sustained a head injury two years before. Although he did not complain of any severe form of headache, the dizzy spells which he suffered were often severe enough to necessitate bed rest for two or three days. Potassium iodide and histamine did not alleviate the symptoms, nor did insufflation of the eustachian tubes periodically for one year.

Examination revealed a normal ophthalmic state with clear fundi, normal visual fields and normal extraocular movements. Clockwise rotary nystagmus to the right and counterclockwise rotary to the left were noted, as was lateral nystagmus ahead in the three primary positions. The caloric action was much prolonged, with accompanying past pointing to the right. One degree nerve deafness on the right was elicited.

Therapy consisted of 1 cc. of solution of prostigmine methylsulfate 1:2,000 intramuscularly twice weekly and a 15 mg. tablet of prostigmine bromide three times daily by mouth. The following observations were made during the next six months:

May 1. No bad spells to date.

May 13. No bad spells. Dizziness much less. Nystagmus almost absent. Patient is working again.

June 3. No nystagmus and very little dizziness.

June 5. Very dizzy and nystagmus very active. Drank several bottles of beer last night.

June 12. On restricted fluids during past week. Symptoms and signs as of June 5.

July 1. Told to force fluids and return in twenty-four hours.

July 2. Symptoms and signs very prominent again.

August 5. Forced fluids during past twenty-four hours. Symptoms and signs not as bad as on July 2.

October 4. Forced fluids during past twenty-four hours, with only occasional dizziness. Poorly sustained lateral nystagmus to the right.

October 5. No symptoms or signs.

November 25. Forced fluids during past twenty-four hours without any symptoms or signs. Treatment stopped.

CASE 2.—S. F., a housewife aged 59, sustained a head injury on Jan. 31, 1940. Since that time she had suffered from frontal and occipital headaches, photophobia, almost constant dizziness and occasional diplopia, especially when looking to the left.

Examination on February 3 revealed blurring of the disk margins and enlarged retinal veins. Spontaneous clockwise rotary nystagmus was noted when the patient looked to the left and counterclockwise to the right, both types being present in all primary positions. Caloric tests elicited a prolonged response with past pointing. On February 22, after having been in bed since the time of the accident, the patient showed no change in symptomatology. The dizziness was severe enough to enforce complete bed rest.

Therapy consisted of 1 cc. of solution of prostigmine methylsulfate 1:2,000 intramuscularly twice weekly and a 15 mg. tablet of prostigmine bromide three times daily by mouth.

On March 3 she was out of bed and moving about. There was no nystagmus, and the results of caloric tests were normal. Therapy was discontinued.

The patient was seen on September 11, and there had been no recurrence of symptoms.

It is notable that this patient experienced no improvement whatever with twenty-three days of continuous rest in bed. Yet, when prostigmine therapy was initiated, considerable improvement was noted within one week, and complete recovery occurred in twenty-eight days.

COMMENT

The results obtained through the use of prostigmine for the relief of the distressing symptoms of the so-called postconcussional syndrome tend to throw a new light on the etiology of this disorder. It is not intended to discount entirely the evidence accumulated by Penfield and some of the other investigators in this field but rather to contribute additional proof that the syndrome, in part or in some cases at least, has as its etiologic basis an altered vasomotor activity.

Prostigmine is a synthetic autonomic preparation having an action similar to that of physostigmine but lacking many of the disadvantages of the latter drug. Chemically it is the dimethylcarbamic ester of 3-hydroxyphenyl-trimethyl-ammonium methylsulate or bromide. Its mode of action has not as yet been definitely demonstrated, but it is believed that Ammon's [13] conception is the correct one. This investigator has shown that prostigmine inhibits the action of cholinesterase on acetylcholine, which is liberated at the myoneural junction and which is believed to act as the transmitting agent for the nervous impulse as it passes from the nerve fibers to the effector organ. It would be expected therefore that prostigmine would act as a potentiator of any acetylcholine effects which might occur in vivo. It is a well known fact that acetylcholine is a powerful vasodilator, and, similarly, the administration of prostigmine to the intact organism results in a vasodilat-

10. Boyd, Douglas: Post-Traumatic Headache Treated by Spinal Insufflation of Air, Arch. Surg. **18**: 1626 (April) 1929. Drayton, William, Jr.: Pneumocranium in Treatment of Traumatic Headache, Dizziness and Changes in Character, Arch. Neurol. & Psychiat. **32**: 1302 (Dec.) 1934. Jessen, H.: Treatment of Traumatic Headache by Insufflation of Air, Acta psychiat. et neurol. **8**: 71, 1933. Reichert, F.: Specific Treatment of Post-Traumatic Localized Headache by Subarachnoid Pneumotherapy, S. Clin. North America **11**: 1123, 1931. Skinner, H.: Headache (Post-Traumatic) Relieved by Lumbar Air Insufflation, Am. J. Surg. **8**: 842, 1930.

11. Brahdy, L.: Ergotamine Tartrate in the Treating of Postconcussion Headache, Indust. Med. **6**: 409, 1937.

12. Barany, R.: Untersuchungen über den vom Vestibularapparat der Ohres reflektorisch ausgelösten rhythmischen Nystagmus und seine Begleiterschweinungen (Ein Beitrag zur Physiologie und Pathologie des Bogengangapparates), Berlin, C. Coblenz, 1906.

13. Ammon: Ergebnisse Enzymforsch. **4**: 208, 1935.

ing phenomenon. Perlow [14] has found this dilatation to be primarily arterial rather than arteriolar or capillary.

It seems not irrational to hypothesize that, in the relief of symptoms due to the postconcussional syndrome, prostigmine acts on the labyrinthine and cranial blood vessels. Many investigators have shown that spasm of a blood vessel is often pain producing, as may be noted by the conception of many that the excruciating pain of angina pectoris is due primarily to a transient spasm of the coronary vessels.

Helfand [15] found in a series of 22 cases of the syndrome that many of the findings were of a functional (reversible) nature and postulated that they were primarily vasomotor in origin. Wolff [16] concluded recently that the best evidence of the cause of intracranial pain at present is that it is an alteration in the tonus of the involved arteries and the meningeal arteries in particular. This fits in very well with the results obtained with prostigmine.

Zacks,[6] as previously mentioned, has described degenerative changes in the nuclei of the cochlear and vestibular nerves, as well as an altered irritability of the vasodilators and vasoconstrictors, with resultant areas of localized altered circulation.

It will be noted that in 4 of the cases the forcing of fluids [17] after apparent recovery resulted in a severe exacerbation of symptoms, but as recovery was more complete forcing fluids did not cause recurrence of symptoms. Thus, forcing fluids may be used to determine when recovery is complete.

Dederding [18] observed in cases of Ménière's syndrome that more frequent and severe attacks occurred when there was evidence of retention of body water. He consistently noted improvement when the patients were relatively dehydrated by restriction of the fluid intake and the use of pilocarpine or mercurial diuretics. Furstenberg,[19] working with the same type of patient, concluded that, if ammonium chloride was substituted for sodium chloride, no distressing symptoms arose when the water intake was increased. Thus it is evident that the labyrinth and cranial contents are functionally disturbed by whatever factors lead to a retention of an excess of fluids. It is probable that the improvement of such symptoms afforded through the use of prostigmine is due mainly to the increase of circulatory efficiency allowing the electrolytic balance to return to normal. It is possible that during the process of vasodilatation organic changes, such as adhesions, are mechanically broken up.

In conclusion it seems logical to state that in this series of cases the symptoms were basically of a pathophysiologic nature and, more specifically, organic changes producing an alteration of the involved vasomotor tonus. The value of prostigmine in alleviating and eventually abolishing the symptoms is striking, and it is suggested that this drug be employed in all cases of the postconcussional syndrome in which the symptoms are distressing enough to require therapeutic intervention. As adjunctive therapy it may be advisable to replace sodium salts with ammonium and to restrict excess fluid intake until the "force fluid" test shows that recovery is complete. If, after a fair trial with prostigmine, there is little or no relief of symptoms, more complicated surgical intervention may be necessary.

324 East Wisconsin Avenue.

14. Perlow, Samuel: Prostigmine in the Treatment of Peripheral Circulatory Disturbances, J. A. M. A. **114**: 1991 (May 18) 1940.
15. Helfand, M.: Cerebral Lesions Due to Vasomotor Disturbances Following Brain Trauma, J. Nerv. & Ment. Dis. **90**: 157 (Aug.) 1939; Changes in the Vascular Patterns of the Brain in Experimental Trauma, Psychiatric Quart. **15**: 33 (Jan.) 1941.
16. Wolff, H. G.: Headache and Cranial Arteries, Tr. A. Am. Physicians **53**: 193, 1938.
17. Pilcher, Cobb: Experimental Cerebral Trauma: The Fluid Content of the Brain After Trauma to the Head, Arch. Surg. **35**: 512 (Sept.) 1937.
18. Dederding, D.: Clinical and Experimental Examinations in Patients Suffering from Mb. (Morbus) Menieri Including Study of Problem of Bone Conduction, Acta. otolaryng. **1**, 1929, supp. X.
19. Furstenberg, A. C.; Lashmet, F. H., and Lathrop, F.: Ménière's Symptom Complex: Medical Treatment, Ann. Otol., Rhin. & Laryng. **43**: 1035, 1934.

INVOLVEMENT OF THE BRAIN STEM IN THE PRESENCE OF SUBDURAL HEMATOMA

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One of the most striking characteristics of subdural hematoma is its capacity for producing complex and variable symptomatology. From the time of its emergence as a disease entity out of the group of pachymeningitis hemorrhagica interna, the effective therapy for this condition has remained essentially unchanged and the problem has been posed as one of diagnosis. Accordingly, the study of subdural hematoma has been concerned largely with the clinical appearance of the disease as a syndrome requiring early and forthright recognition for its successful treatment.

Even from the earliest reports, the impression is gained of the diverse and shifting character of the presenting picture. In the clinical study of Trotter [1] in 1914 the main characteristics of the condition were already described: trauma, often slight, was considered the invariable cause; a latent interval of hours to days was noted, followed by the prodromal symptoms of headache and generalized retardation. The period of severe symptoms which followed was characterized by a variable state of consciousness and relatively few neurologic signs, chief among them being hemiparesis, occasional swelling of the optic disks, pupillary changes and oculomotor weakness. Trotter concluded that "the variable and apparently capricious clinical course of such chronic hemorrhages, far from rendering the diagnosis exceptionally difficult . . . constitutes a clinical type at once well marked and characteristic." And he advised early operation with bilateral trephination.

In 1925 Putnam and Cushing [2] reviewed the problem and listed the syndrome as including (*a*) the general effects of increased intracranial pressure, such as headache, vomiting, somnolence, bradycardia and papilledema, (*b*) the signs of meningeal irritation, such as the positive Kernig sign and neck rigidity, and (*c*) the evidence of local pressure, such as paralyses, spasticity, aphasia, occasional sensory disturbances and, rarely, convulsions. Mention was made of oculomotor abnormalities, but these were not discussed.

Kaplan in 1931 [3] reported 8 cases in which he called attention to the presence of pupillary dilatation on the side of the lesion and indicated its importance as a

From the Neurologic Service, Dr. Foster Kennedy, Director, Bellevue Hospital.
Dr. F. A. Quadfasel of the Bellevue Neurologic Service gave advice in the preparation of this paper.

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2. Putnam, T. J., and Cushing, Harvey: Chronic Subdural Hematoma, Arch. Surg. **11**: 329 (Sept.) 1925.
3. Kaplan, A.: Chronic Subdural Hematoma: A Study of Eight Cases with Special Reference to the State of the Pupil, Brain **54**: 430, 1931.

lateralizing sign. However, this was contrary to the experience of Munro,[4] who found no such correlation. Others, including Laudig, Browder and Watson[5] and Voris,[6] have studied this problem further, with inconclusive results. Gardner[7] emphasized the latent period and adduced evidence in support of the theory of slow osmotic enlargement of the clot. Fleming and Jones[8] recalled attention to the frequent bilateral occurrence of the hematomas and discussed the bearing of this fact on the clinical picture. Significant contributions in other respects were made by Leary,[9] Munro[10] and Kunkel and Dandy.[11] And yet, despite these and other advances in the knowledge of subdural hematoma, the presenting syndrome is often so elusive that Carmody in 1941[12] was able to write, in substantial agreement with most other authors, "It is being increasingly recognized that subdural hematoma can simulate almost any brain lesion—and operative exploration is the one way of ruling it out." And there is evident a tendency toward the more frequent use of trephination in an exploratory manner whenever the presence of subdural hematoma is even suspected.

The present report concerns a group of cases in which the clinical appearance is such that the diagnosis of subdural hematoma is generally not even considered and the patient therefore not given the benefit of operative exploration. There have recently come under our care 6 such cases, in which the clinical symptomatology has simulated indigenous lesions of the brain stem. The failure to recognize the cause resulted in the adoption of a conservative policy with regard to therapy. In 2 cases this terminated in death and the discovery of subdural hematoma on autopsy. In 1 other, after some delay, trephination was performed for ventricular puncture and the hematoma discovered in the course of this procedure. And in the 3 remaining cases the appropriate diagnosis was made only after a delay during which the signs had progressed. In all these cases attention had been directed to the brain stem by the presence of ocular signs which relate to the function of the midbrain and pontine nuclei.

Certain ocular signs which are not attributable to the brain stem are known to occur in subdural hematoma. Putnam[2] remarked on the appearance of pupillary changes, conjugate deviation, ptosis and strabismus and accorded them a diagnostic but no localizing significance. Kaplan's study[3] of pupillary dilatation as a lateralizing sign of subdural hematoma has already been referred to. Jelsma,[13] in an analysis of 42 cases collected from the literature, found disturbance of the ciliary part of the third nerve, extraocular muscle weakness or simple abducens paralysis in more than one fourth of the cases. A review of 48 cases in the neurologic service from 1932 to 1940 revealed (in the order of incidence) anisocoria, impaired pupillary reaction, ptosis and paralytic strabismus, with ocular palsies not uncommon. With the exception of pupillary changes (the causation of which is not clear in this connection) all these signs may be ascribed to involvement of the third, fourth or sixth cranial nerves in their peripheral course along the base of the skull—presumably by pressure or traction.

However, in the group of cases of subdural hematoma under present discussion, the oculomotor signs were paralysis of gaze and of convergence, nystagmus and even, at times, disorganization of gaze.[14] These signs cannot be satisfactorily explained by involvement of the nerves in their peripheral course at the base of the brain. They represent damage to the brain stem proper and are referable to impairment of function of the oculomotor nuclei, the region of the quadrigeminal plate, the abducens nuclei, the para-abducens region and the posterior longitudinal bundles—all being structures within the substance of the midbrain and pons. It was as a consequence of this symptomatology that the observers chose a conservative course rather than the surgical procedure so urgently required.

A survey of the literature of subdural hematoma reveals the sporadic occurrence of similar cases with signs of brain stem disease.[15] Though in individual instances these have been striking, attention has never previously been directed to them as a group. One case, which was carefully studied by Lord,[16] is deserving of special mention in that it exemplifies our problem most clearly:

A man aged 43 entered the hospital with the complaint of occipital headaches for the previous six weeks together with weakness, unsteadiness, somnolence and occasional nausea. There was no history of trauma.

The patient was poorly attentive. The cranial nerves were normal. The neck was stiff. There were slight right finger to nose ataxia and the suggestion of a Romberg sign.

Under observation the left pupil became widely dilated, and it reacted sluggishly to light. Subsequently there appeared paralysis of upward gaze with weakness of convergence. The right lower extremity showed increased knee jerk and Babinski and Gordon signs. The spinal fluid was tinged with blood and was xanthochromic. The findings were assigned mainly to lesions of the left cerebral peduncle and the quadrigeminal plate, and the diagnosis was made of hemorrhage (or tumor with hemorrhage) into the midbrain.

Surgical intervention was not advised. The course was downhill to death on the nineteenth hospital day. Autopsy revealed bilateral frontoparietal subdural hematomas, and careful section of the midbrain showed no pathologic changes.

REPORT OF CASES

Six cases which have come under our own observation are now described:

CASE 1.—*History.*—M. C., a woman aged 50, was admitted on March 4, 1940 in a somnolent condition with a complaint of intermittent drowsiness of one week's duration. She was

4. Munro, Donald: The Diagnosis and Treatment of Subdural Hematoma, New England J. Med. **210:** 1145, 1934.
5. Laudig, G. H.; Browder, E. J., and Watson, R. A.: Subdural Hematoma, Ann. Surg. **113:** 170, 1941.
6. Voris, H. C.: The Diagnosis and Treatment of Subdural Hematoma, Surgery **10:** 447, 1941.
7. Gardner, W. J.: Traumatic Subdural Hematoma, Arch. Neurol. & Psychiat. **27:** 847 (April) 1932.
8. Fleming, H. W., and Jones, O. W., Jr.: Chronic Subdural Hematoma, Surg., Gynec. & Obst. **54:** 81 (Jan.) 1932.
9. Leary, Timothy: Subdural Hematoma, J. A. M. A. **103:** 897 (Sept. 22) 1934.
10. Munro, Donald: Craniocerebral Injuries, New York, Oxford University Press, 1938.
11. Kunkel, P. A., and Dandy, W. E.: Subdural Hematoma, Arch. Surg. **38:** 24 (Jan.) 1939.
12. Carmody, J. T. B.: An Unusual Case of Subdural Hematoma, New England J. Med. **224:** 541, 1941.
13. Jelsma, Franklin: Chronic Subdural Hematoma, Arch. Surg. **21:** 128 (July) 1930.

14. The phrase "disorganization of gaze" as used by the neurologic examiners who observed these cases was intended to denote the dissociation of conjugate movement in such fashion that the harmony normally obtaining between the two eyes is disturbed though there is no individual muscle weakness. One type of such dissociation of gaze has been described by L'Hermitte under the title "ophthalmoplegia internuclearis anterior" and attributed to lesions of the internuclear pathway of the posterior longitudinal bundle.
15. Putnam and Cushing[2] case 8, Kunkel and Dandy[11] case 30.
16. Lord, F. T.: A Case of Spontaneous Subdural Hematoma in Which the Diagnosis Was Missed During Life, M. Clin. of North America **10:** 1119, 1927.

a known alcoholic addict, and it was subsequently learned (in the course of investigation at the conclusion of the case) that she had been struck on the head in the course of an argument one week before.

Physical Examination.—The patient was obese, somnolent and moderately dehydrated. Her temperature and respirations were normal, but the pulse rate was 62 and the blood pressure 180 systolic and 110 diastolic. There was no evidence of trauma of the head or stiffness of the neck. The right pupil was greater than the left; both reacted sluggishly to light. Both horizontal and vertical nystagmus were present. There was slight right facial weakness of central type, with weakness of the right arm and both legs. The reflexes were overactive, more so on the right, with bilateral Babinski signs. The remainder of the examination disclosed a hard nodule in the thyroid, some medium moist rales at the left base and a heart of normal size, with forceful sounds and a systolic murmur at the base, with the aortic second sound louder than the pulmonic.

A lumbar puncture revealed xanthochromic fluid with initial pressure of 70 mm. of water. Other findings were normal in the spinal fluid, blood and urine.

Course.—The following day the patient was seen by the neurologic consultant, who found her drowsy but still able to give her name and fairly cooperative. The pupils were dilated and fixed to light; there was ptosis of the right upper lid. Paralysis of right lateral and upward gaze were present (and there was mention of paralysis of the right abductor at the same time). The weakness and spasticity of the limbs and bilateral hyperreflexia, more on the right, were as noted previously, and, in addition, deep sensation was impaired on the right. There were no sucking or grasping reflexes present.

The diagnosis of pontine and midbrain hemorrhage was made. The course was steadily downhill, and the patient died on the fourth hospital day.

Autopsy.—There were moderate left ventricular hypertrophy and sclerosis of the aorta. The lungs showed confluent lobular pneumonia, and examination of the liver disclosed some degree of fatty change. The main findings related to the head. The scalp showed no evidence of injury. Removal of the calvarium disclosed a subdural hemorrhage which appeared in the form of a blood clot limited to the right side of the vault and base of the skull. The blood clot when removed weighed 70 Gm., and there was some adherence of the clot to the dura on the vault of the skull. At the base of the skull there was also a slight subdural hemorrhage in the anterior fossa on the left side. On the surface of the brain, over the right parietal lobe and near the longitudinal fissure, there was visible a ruptured pial vein from which a small clot protruded conspicuously. The brain showed considerable molding of the right cerebral hemisphere and flattening of the left hemisphere. On section, the brain, including the midbrain and pons, showed no lesions on careful gross inspection.

This patient presented outstandingly horizontal and vertical nystagmus, followed by the appearance of dilatation, with fixation of both pupils, ptosis of the right lid and paralysis of upward and of right lateral gaze. There were further, bilateral pyramidal signs, more on the right, and impairment of deep sensation of that side. Ptosis of the lid is, as has been noted, commonly found in cases of subdural hematoma and has been attributed to pressure or traction on components of the third cranial nerve. However, the presence of pupillary dilatation and gaze paralyses directed attention to the midbrain and pons leading, in this case, to a diagnosis of midbrain hemorrhage with consequent conservatism in therapy. On autopsy the patient was found to have a subdural hematoma with no lesion in the brain stem on careful gross inspection.

CASE 2.—*History.*—M. L., a white man aged 54, was admitted to the neurologic service on July 11, 1940 with the complaint of occipitoparietal headaches for nine weeks, becoming progressively worse. More recently there had been dizziness with nausea, transient amnesia and drowsiness. In the few days before entry the family had remarked that the patient was at times disoriented and confused. There was no past history of alcoholism, but the patient had suffered a moderate blow on the head about three weeks before the onset of symptoms.

Physical Examination.—The patient was drowsy, with incessant yawning and dozing. Though responding to simple commands, he was disoriented for time, place and person, and there were gross recent memory defects and compensatory confabulation. His blood pressure was 150 systolic and 100 diastolic and his pulse rate was 76. There was no external evidence of injury. The fundi were normal. The pupils were small and irregular and reacted to light and near fixation. Gaze was normal, and there was no nystagmus. Other cranial nerves were normal. There was moderate hypertonus, more on the left, with bilaterally equivocal plantar reflexes. Sensation was intact within testable limits. The provisional diagnosis was of an expanding intracranial lesion but with no localization possible.

On lumbar puncture the spinal fluid was bloody because of the traumatic insertion of the needle but was not otherwise abnormal. The serologic reactions were negative.

Course.—Under observation the patient became more stuporous, though with intermittent periods of alertness. On the third day there appeared a left lower facial paresis, pyramidal signs on the left and ocular signs, consisting in bilateral lid ptosis, definite isolated paralysis of the left internal rectus and weakness of the left external rectus movements, without gaze paresis or nystagmus. The impression was that of a rapidly developing midbrain and pontine lesion, though subdural hematoma was considered. Ventriculography was advised.

On the fifth hospital day, bilateral trephines were made over the occipital regions. An old dark subdural hematoma was found on the right, and 75 cc. of dark red blood with clots was evacuated. There was immediate improvement and, though the postoperative course was unsettled, with recurrent stupor, occasional disorientation and persistent diplopia, this improvement continued. On the thirteenth postoperative day there was still present isolated paralysis of the left internal rectus. On the thirty-seventh postoperative day the patient was discharged with residual diplopia and occasional headaches but otherwise well. On reexamination some months later there was moderate paresis of movement of the left internal rectus but no other abnormality.

This patient presented the general signs of drowsiness, disorientation and confusion together with left sided pyramidal signs and bilateral lid ptosis. The associated paralysis of the left internal rectus movement was considered a manifestatoin of involvement of the oculomotor nucleus—part of a brain stem lesion. Trephination, however, revealed a subdural hematoma, and after its removal there was incomplete but progressive clearing of the signs. The appearance of paralysis of the left internal rectus long after the initial injury and during the period of expansion of the hematoma indicates that the midbrain lesion resulted from pressure transmitted from above. Apparently this pressure was great enough to cause actual damage in the oculomotor nucleus—anatomic damage which was not completely reversible.

CASE 3.—*History.*—H. F., a white man aged 40, unmarried, was admitted to the neurologic service on July 24, 1940 with a complaint of increasing weakness. The patient was a known chronic alcoholic addict with epileptic seizures occurring yearly

since the age of 18 years. More recently the seizures had become more frequent and more severe following drinking. In the three years before the present entry there had been four hospital admissions for postalcoholic convulsions, and on two of these occasions there had been evidence of fractured skull. On the last of these previous admissions, in March 1940, there had been noted essentially a right pupil slightly larger than the left, a suggestive left central facial weakness and left sided pyramidal signs. The possibility of subdural hematoma was then entertained, but the patient refused treatment and left the hospital. Since that time, however, the left arm and leg showed increasing weakness, accompanied by drooping of the left eyelid together with right frontal headaches.

Physical Examination.—The patient was somnolent but easily roused and quite cooperative. His pulse rate was 60 and his blood pressure 125 systolic and 80 diastolic. There was an old scar with deformity over the occiput. The fundi showed slight blurring of the disks, more on the left. There was some ptosis of the left lid; the pupils reacted poorly to light, and the left pupil was smaller than the right. Ocular movements were outstandingly impaired, with almost complete paralysis of upward gaze and vertical nystagmus on the attempt, and there were definite weakness of downward gaze and absence of convergence. There was some weakness of right eye adduction; but other movements were normal, and no disorganization of gaze was noted. There were, further, left lower facial weakness, paresis of the left arm and leg and bilaterally overactive reflexes, with impaired abdominal and bilateral Babinski reflexes. Sensation was intact.

Lumbar puncture revealed initial pressure of 180 mm. of water, with entirely normal spinal fluid and negative serologic reactions.

Course.—The impression was of subdural hematoma. During the night the patient became more stuporous, and the following morning bilateral temporal trephines were made. On the right the dura was normal. On the left was found a chronic subdural hematoma under pressure, and 100 cc. of dark clotted blood was evacuated. The response was immediate and dramatic, with clearing of the sensorium and remission of the physical signs. Five hours postoperatively, but for a residual anisocoria, the ocular signs had cleared completely. After an uneventful convalescence, the patient was discharged improved on the twenty-seventh postoperative day.

In this case the previous history, the course of the illness and the physical signs all supported the finding of subdural hematoma. The ptosis and anisocoria are, of course, often found in such cases. The remaining ocular signs, however, were considered most unusual for this condition. The almost complete paralysis of the upward gaze, with vertical nystagmus, the weakness of the downward gaze and the failure of convergence all indicate involvement of the midbrain proper in the region of the oculomotor nuclei and the quadrigeminal plate. Though the precise cause of this involvement is not clear, the almost immediate disappearance of the oculomotor signs postoperatively stands against an intrinsic lesion of the brain stem and favors an effect from the hematoma itself—presumably transmitted pressure.

CASE 4.—J. T., a man aged 46, white, married, a brick layer, was admitted to the neurologic service on Dec. 9, 1939 with increasing stupor. Three days before entry he had been found semiconscious in the street but without evidence of injury at that time. He was taken home and, while under home care, showed persistent stupor, incontinence, right sided weakness and inability to speak clearly.

Physical Examination.—The patient, though conscious, was lethargic and inattentive and did not respond to questions. There were pitting edema over the scalp, with depression at the vertex, and several old scars supraorbitally and over the occiput. The pupils were irregular but equal and reactive. The patient could not converge. There was ptosis of the left lid, but no other ocular abnormalities were noted. Right facial weakness of central type was present, as were paralysis of the right arm and to a lesser degree of the leg. Further, the right abdominal reflex was easily exhaustible, and there was a right Babinski sign.

A lumbar puncture revealed an initial pressure of 240 mm. of water. The fluid was pinkish, with 4,200 red blood cells per cubic millimeter and 40 mg. of protein per hundred cubic centimeters. A Pandy test and serologic tests were negative.

Course.—Roentgen examination showed a lineostellate fracture at the vertex without evidence of depression. The impression at this time was of craniocerebral injury with cerebral laceration. The patient was kept under observation. On the following day he became more responsive, answering questions and being able to move the right arm. At this time, however, there appeared ptosis of the left upper lid (previously noted), double external rectus weakness, failure of convergence and disorganization of both horizontal and vertical gaze (one observer noted, in addition, weakness of lateral gaze to the right. The impression was of contrecoup hemorrhages of the brain stem, and a conservative policy was advised. Under further observation for ten days the patient continued to be intermittently disoriented but, on the whole, improved.

However, on the twelfth day after entry there were a recurrence of stupor and an increase in right sided paresis. A diagnosis of subdural hematoma was then entertained, and bilateral frontoparietal trephines were made. On the left, a large subdural hematoma was found from which was evacuated 200 cc. of brownish liquid and clotted blood. There was immediate return of consciousness. The postoperative course except for intermittent stupor showed steady improvement with clearing of the pyramidal and ocular signs in about one week. The patient was discharged well on the twenty-third postoperative day.

While this patient was under observation for fractured skull and right sided pyramidal signs, there appeared ocular signs which indicated involvement of the midbrain and pons and dictated conservatism in approach. Subsequent recurrence of stupor and right sided paresis led to trephination and the finding of left subdural hematoma, the removal of which was followed by the rapid clearing of all signs.

CASE 5.—*History.*—M. D., a woman aged 49, a housewife, was admitted to the psychiatric division of Bellevue Hospital with the complaint of increasing weakness of the left side. The patient was a known chronic alcoholic addict who gave a vague history of having bumped her head about a week before entry. This was followed by headaches, intermittent disorientation (according to the daughter) and left sided convulsive seizures on successive days.

Physical Examination.—The patient was apathetic, moderately confused and disoriented and in a postalcoholic state. Her blood pressure was 100 systolic and 70 diastolic and her pulse rate 100. Tenderness of the skull with contusions over the right frontal area was observed. The optic disks were normal. There was an incomplete left homonymous hemianopsia to gross testing. The left pupil was greater than the right, both reacting sluggishly to light. The eyes tended to turn to the right with nystagmus in that direction. There were, further, left lower facial weakness, hemiparesis on the left (increasing to hemiplegia after her left sided seizures) and a left hemianesthesia.

Lumbar puncture showed initial pressure of 220 mm. of water. The fluid was faintly xanthochromic. The Pandy test was suggestively positive. A few red blood cells and white blood cells were noted.

Course.—Under observation the patient had an irregular course. The following day there were noted, in addition to the left sided pyramidal signs previously found, a paresis of left lateral gaze, with nystagmus on gazing to the right. And two days later there appeared increased drowsiness, complete paralysis of left lateral gaze and much impairment of upward gaze. The impression at this time was of midbrain and pontine involvement in addition to hemorrhage in the right cerebral hemisphere. Conservative measures were advised.

However, the pulse rate fell to 70, the patient became more drowsy, the left sided paresis progressed to hemiplegia and there was nystagmus in all directions. The diagnosis of subdural hematoma was entertained, and on the fourth hospital day bilateral parietal trephines were made. On the right was found a large subdural hematoma containing dark red liquid and clotted blood. The postoperative course showed steady improvement; the ocular signs cleared completely, but the hemiparesis and hemihypesthesia remained in some degree. On the twenty-ninth postoperative day the patient was discharged as improved.

Readmission.—Approximately three months later the patient was readmitted to the hospital with a persistence of jacksonian seizures. At this time there were found a spastic left hemiparesis, together with left sided impairment of superficial and deep sensation, including vibration and stereognosis. There were, however, no ocular abnormalities. Encephalography revealed definite dilatation of the right ventricle. The diagnosis was of gliosis and atrophy following the initial cerebral injury. The patient was discharged and given phenobarbital therapy.

Comment.—This patient gave evidence of lesions in the right cerebral hemisphere. The ocular signs were anisocoria and deviation of gaze to the right. While under observation, there appeared paralysis of left lateral gaze and impairment of upward gaze, which signs led to the diagnosis of midbrain and pontine hemorrhage in addition to the lesions in the right cerebral hemisphere. Subsequently, after the progression of signs, trephination was done, and there was disclosed a right subdural hematoma. After its evacuation the oculomotor abnormalities disappeared, though the right cerebral hemisphere remained irreversibly damaged.

Case 6.—*History.*—J. T., a Negro aged 28, was admitted to Bellevue Hospital, psychiatric division, in an intoxicated condition and unable to give any history.

Physical Examination.—The patient was stuporous and uncommunicative. There was no evidence of injury about the head. The pupils were equal and reactive to light and convergence. The other cranial nerves were normal. There were, further, bilaterally overactive reflexes with absent abdominal but normal plantar reflexes.

Lumbar puncture showed normal pressure. The fluid was crystal clear and colorless.

Course.—The patient remained dull and somewhat confused with increasing restlessness and incontinence and, on the fourth day, increasing diffuse headache. At this time the pupils were miotic and fixed to light, and there was impairment of convergence and upward gaze but no nystagmus. There were, further, bilateral pyramidal signs, more on the left, with questionable hemihypesthesia on that side. The right upper extremity displayed a rhythmic tremor described as parkinsonian. The patient was transferred to the neurologic service.

During the following days the pupils became dilated and fixed to light, with disorganization of gaze and a tendency toward bilateral ptosis. The impression was that of alcoholic polioencephalitis superior. The patient became drowsier, passed into a coma and died on the eighth hospital day.

Autopsy (confined to the head).—There was hemorrhage in the temporal muscle. The calvarium was normal and without fracture, as was the base. On removal of the dura, a large subdural hematoma was found over the left cerebral hemisphere covering the vertex and also extending into the base. This hemorrhage was about 6 ounces (180 cc.) in amount and was composed of dark reddish brown clotted blood. No membrane formation was seen. The convolutions over the left hemisphere were molded, but there was no lesion of the brain tissue. Over one of the convolutions in the posterior part of the frontal lobe, just anterior to the junction between the rolandic and sylvian fissures, was a small, torn pial vein. Convolutions of the right hemisphere showed distinct flattening, with obliteration of the sulci, and there was considerable flattening at the base of the brain. The basal ganglions were intact, and the midbrain, pons and cerebellum were normal on careful gross inspection. The vessels at the base were normal.

This patient presented the following ocular signs: miotic and fixed pupils, which then became dilated and fixed, and impairment of convergence and of upward gaze, followed by dissociation of gaze. Further there were bilateral pyramidal signs more on the left, a parkinsonian tremor of the left arm and suggestive left hemihypesthesia. Under observation the patient had a downhill course and died. On autopsy, a subdural hematoma was found, but the brain stem was entirely normal except for flattening.

GENERAL COMMENT

The pathogenesis in general of those ocular signs in subdural hematoma which are referable to lesions of the brain stem is probably manifold, with differing mechanisms coming into play in different cases. Not infrequently a subdural hemorrhage in the usual location is accompanied by hemorrhage elsewhere. Even a brief review of autopsy material in the cases of subdural hematoma (other than those just described) from the Bellevue neurologic service has disclosed the occurrence of contrecoup lesions with associated hemorrhage around the cerebellum or within the brain stem. Though these occur most commonly in the more acute injuries, their appearance with chronic subdural hematoma is not unknown. In one case of long duration autopsy revealed, besides a left subdural clot, hemorrhage within the fourth ventricle and under the surface of the cerebellum. In this patient the ocular signs were pinpoint size pupils which were fixed to light and right internal and left external rectus paresis.

In other cases a subdural hematoma in the usual parasagittal or parietal location, being large, extends down under the brain into the basilar fossae and may reach to the brain stem. In yet other instances the hematoma may itself occur in an unusual place. Hematomas have been reported by Dandy [17] over the lateral surface of the temporal lobe and also under that lobe in the middle fossa. The same author has found the lesion also at the sella turcica. The subtentorial location of subdural clots in relation to the cerebellar hemispheres has been described by a number of authors, among them Munro,[10] Peet [18] and Schreiber.[19] Aring and Evans,[20] in their report on this type of lesion, summarized the findings of others and added a case in which there was a clot in the superior longitudinal

17. Dandy, W. E.: The Brain: Subdural Hematoma, in Lewis, Dean: Practice of Surgery, Hagerstown, Md., W. F. Prior & Co., vol. 12, p. 295.
18. Peet, M. M.: Subdural Hematoma, in Brock, Samuel: Injuries of the Skull, Brain and Spinal Cord, Baltimore, Williams & Wilkins Company, 1940, chapter 7, p. 133.
19. Schreiber, F.: Chronic Subdural Subtentorial Hematoma, Yale J. Biol. & Med. **11**: 469, 1939.
20. Aring, C. D., and Evans, J. P.: Aberrant Location of Subdural Hematoma, Arch. Neurol. & Psychiat. **44**: 1296 (Dec.) 1940.

fissure between the cerebral hemispheres. In certain cases, therefore, subdural hematoma either by virtue of its own aberrant location or through associated brain stem or basilar hemorrhage can cause the signs of brain stem disease.

Notes on Pathogenesis.—However, in the cases under present discussion, none of these mechanisms could have been operative. Rather, there must have been transmission of pressure from the expanding supratentorial lesion to structures at the base of the brain. In cases 1 and 6, the 2 cases in which autopsy was performed, the brain stem revealed no lesions beyond the flattening already noted. In case 3 the ocular signs cleared almost immediately after operation, thereby indicating that there was no intrinsic brain stem damage but rather a disturbance of function caused by pressure from above and relieved with the removal of that pressure. In the remaining cases, 2, 4 and 5, the signs of brain stem involvement appeared several days to weeks after the initial injury and during the period in which the signs of an expanding intracranial mass were increasing. After operation in these cases the ocular signs cleared slowly over a period of weeks to months, in 1 patient with residual defect. Here one may postulate that transmitted pressure was sufficiently severe or of such duration as to bring about secondary hemorrhage into or softening of brain stem structures. That such secondary hemorrhage can occur into the midbrain as a result of extrinsic pressure has been showed by Van Gehuchten [21] and by Moore and Stern.[22]

The precise mode of the transmission of pressure from the supratentorial space to the brain stem is possibly through the formation of a temporal pressure cone.[23] Unfortunately, in the 2 cases in this group which came to autopsy, the question was not specifically considered at the postmortem examination, and therefore judgment on this point cannot be made. Nevertheless, this mechanism offers a plausible explanation for the findings and merits consideration. Schwarz and Rosner [24] in a recent thorough study of the subject have found the herniation of the hippocampal gyrus through the incisura of the tentorium to occur in 83 per cent of the patients with expanding supratentorial lesions coming to autopsy. The tumors, in their cases, occurred at almost any point over the cerebral hemispheres, with perhaps a predilection for the areas surrounding the sylvian fissure. That subdural hematoma, in its character of an expanding lesion, is at times a cause of such tentorial herniation has been recognized. In 1 case in the series of Schwarz and Rosner there was a subdural hematoma, and Aring and Evans, in their article to which I have already referred, described 2 others. In a report of some years previously, Spatz and Stroescu [25] described a case in which bilateral subdural hematoma was the cause of herniation through the tentorium, and they showed how such herniation could press on the diencephalon and brain stem.

The clinical picture of the temporal pressure cone has been studied by a number of authors.[26] Jefferson in 1938 [27] emphasized the secondary effects of tentorial herniation in its production of pressure on the midbrain and described cases in which the clinical picture featured fixation and dilatation of the pupils together with decerebrate states. Schwarz and Rosner, in their study previously referred to, found disturbance of oculomotor function among the most prevalent of all signs of tentorial herniation, and they mentioned 4 cases in which there was limitation of upward gaze. There is little doubt, then, that herniation of the medial part of the temporal lobe through the tentorium may be caused by subdural hematoma and that such herniation may press on the brain stem, causing functional impairment or structural damage according to the severity of the pressure. Though there is no proof that this mechanism was operative in the cases described, I advance it as a hypothesis requiring further study and confirmation.

Clinical Syndrome.—It will be recalled that the diagnoses originally entertained in some of these cases were of lesions of the midbrain of one type or another. Wernicke's alcoholic polioencephalitis superior was diagnosed in 2 cases, tumor in another and hemorrhage into the brain stem—due either to hypertension or to contrecoup injury—in the rest. It would be interesting to see whether these cases present a consistent and recognizable clinical picture in such fashion that the true diagnosis might have been made more frequently and in time to permit more effective surgical treatment.

In all but 1 of the cases there was a history of trauma of the head, and in most of the patients (including the one from whom no history of injury was obtainable) there was a background of alcoholism. The duration of the symptoms was from two to four months in 2 of these cases and from days to weeks in the others; this is in contrast to the much slower course of tumors of the brain stem, which generally develop over a period of months or years. On the other hand, the onset of signs in these cases was slower and more insidious than in cases of hemorrhage, the symptoms of which occur dramatically and, in the case of contrecoup damage to the brain stem, might be expected to date from the time of the initial injury. Furthermore, though the clinical picture was on the whole progressive, in most of these cases there was a fluctuating course with regard both to the state of consciousness and to the ocular signs themselves. Although a patient with tumor of the brain stem may show shifting states of consciousness, a pronounced fluctuation of signs is rather characteristic of subdural hematoma as against the more steady progression that is usually associated with tumor.

Finally the distribution and degree of the brain stem signs deserve notice. In indigenous disease of the brain stem the local signs might be expected to be outstanding, and they are often found to involve chiefly the

21. Van Gehuchten, P.: Le mécanisme de la mort dans certaines cas de tumeur cérébrale, Encéphale **32**: 113, 1937.

22. Moore, M. T., and Stern, K.: Vascular Lesions in the Brain Stem and Occipital Lobe Occurring in Association with Brain Tumors, Brain **61**: 70, 1938.

23. Meyer, Adolf: Herniation of the Brain, Arch. Neurol. & Psychiat. **4**: 387 (July) 1920.

24. Schwarz, G. A., and Rosner, A. A.: Displacement and Herniation of the Hippocampal Gyrus Through Incisura Tentorii, Arch. Neurol. & Psychiat. **46**: 297 (Aug.) 1941.

25. Spatz, H., and Stroescu, G. J.: Zur Anatomie und Pathologie der äusseren Liquorraume des Gehirns (Die Zisternenverquellung beim Hirntumor, Nervenarzt **7**: 841, 1934.

26. Van Gehuchten, M. P.: Le mécanisme de la mort dans certaines cas de tumeur cérébrale, Rev. neurol. **65**: 702, 1936: Vincent, C.; David, M., and Thiebaut, J.: Le cône de pression temporal, Rev. neurol. **65**: 536, 1936. Ried, W. L., and Cone, W. V.: The Mechanism of Fixed Dilatation of the Pupil Resulting from Ipsilateral Cerebral Compression, J. A. M. A. **112**: 2030 (May 20) 1939.

27. Jefferson, Geoffrey: The Tentorial Pressure Cone, Arch. Neurol. & Psychiat. **40**: 857 (Nov.) 1938.

hindbrain or else the entire brain stem in scattered fashion bilaterally. In these cases the signs were generally slight or moderate compared with the rest of the picture, and they related chiefly to the midbrain without evidence of involvement of the cranial nerve nuclei below the abducens.

Alcoholic polioencephalitis superior may be distinguished from these cases by its character as a deficiency disease: the alcoholism is outstanding, and there are signs of general malnutrition. Changes in the skin and mucous membranes bear witness to lack of specific vitamins. The mental picture is characterized by restlessness or somnolence and often with disorientation. Lastly, apart from the oculomotor disorders and ataxia, localizing neurologic signs are not prominent.

To summarize, the condition in the cases reported was characterized by a history of trauma of the head, a background of alcoholism (predisposing to trauma of the head), the development of signs over a period of days to a few months and a variable and fluctuating course. All together, these features go to make up a clinical picture consistent with subdural hematoma and certainly warranting the suspicion of that condition. And, when that diagnosis is even suspected, the presence of signs of disease of the brain stem should not be considered to contraindicate exploratory trephination.

Notes on Paralysis of Gaze.—A word of caution is in order with regard to the diagnostic significance of oculomotor signs. It is not sufficiently recognized that these signs are not entirely specific and that impairment is sometimes manifest as the result of generalized depression of the sensorium. Kestenbaum [28] has pointed out that any gaze movement involves various levels of activity. Hence in stupor there often occur nonspecific disturbances of these functions. Upward gaze is the first to suffer, followed by convergence, and in deep coma no gaze movements whatever may be elicited. In the review, already referred to, of 48 cases in the Bellevue neurologic service between 1932 and 1940, there was a fairly high incidence of all kinds of oculomotor disturbances in stuporous and semicomatose patients, and a similar incidence obtains with respect to a number of published series. I have tried to select only those cases in which the level of cooperation was such as to warrant the analysis of eye movements.

CONCLUSIONS

In cases of chronic subdural hematoma there occasionally appear signs referable to disease of the brain stem. Because radically different approaches to therapy depend on the appropriate diagnosis in such cases, and particularly because timely surgical intervention is of such dramatic benefit in subdural hematoma, it is important that this fact be kept in mind and that indications for exploratory operation be considered accordingly.

When the other clinical findings warrant the suspicion of subdural hematoma, the presence of signs of involvement of the brain stem should not stand in the way of operative exploration.

99 St. Marks Place.

28. Kestenbaum, A.: Blickbewegungen und Blicklähmungen, Confinia Neurologica **2**: 9, 1939.

INCIDENCE OF LEAD POISONING IN THE CITY OF BALTIMORE

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Since 1935 the Bureau of Laboratories of the Baltimore City Health Department has provided a routine laboratory service for the quantitative estimation of lead in blood and other body fluids as an index of abnormal lead absorption in cases of suspected lead poisoning.[1] The cooperation of those physicians and hospitals who made use of this service was solicited in order to make available the clinical histories of the persons whose bloods were examined for lead. In this way considerable information was obtained about the local occurrence of both industrial and nonindustrial lead poisoning.

A summary of the incidence of lead poisoning in the city of Baltimore during the period 1931-1940 is shown in table 1. These data were obtained from the following sources: (1) reports of occupational lead poisoning, (2) reports of deaths from lead poisoning and (3) cases ascertained in a follow-up of the blood lead laboratory service.

TABLE 1.—*Lead Poisoning in Baltimore, 1931-1940*

Year	Total Cases	Fatal Cases		Nonfatal Cases	
		Adult	Child	Adult	Child
Total	228	7	49	86	86
1931	3	1	2	..	..
1932	51	..	2	12	37
1933	5	1	2	2	..
1934	10	..	6	..	4
1935	22	..	10	5	7
1936	35	1	8	15	11
1937	26	..	2	16	8
1938	19	2	6	4	7
1939	23	1	4	11	7
1940	34	1	7	21	5

All the fatal cases were reported to the Bureau of Vital Statistics. However, there is little tendency to report nonfatal lead poisoning. Lead poisoning in children is not a reportable disease in Maryland. Since 1934 at least 117 cases of nonfatal lead poisoning have occurred in all ages, yet 89 per cent of these cases were ascertained only as a result of a follow-up study of the blood lead laboratory service. The table includes 40 cases of nonfatal lead poisoning which occurred in 1932 as a result of the use of discarded storage battery casings for fuel.[2] Fatal lead poisoning was a far more frequent happening in children than in adults. Eighty-six per cent of the deaths recorded in table 1 were those of children, the primary cause of death in practically all being either lead poisoning or lead encephalitis. On the other hand, in 5 of the 7 adult deaths lead poisoning was reported merely as a contributory cause.

The high frequency of fatal lead poisoning in children reported from Baltimore as compared with other areas

1. Kaplan, Emanuel, and McDonald, J. M.: Blood Lead Determinations as a Health Department Laboratory Service, Am. J. Pub. Health **32**: 481 (May) 1942.
2. Williams, Huntington; Schulze, W. H.; Rothchild, H. B.; Brown, A. S., and Smith, F. R., Jr.: Lead Poisoning from the Burning of Battery Casings, J. A. M. A. **100**: 1485 (May 13) 1933.

is evident in table 2, compiled from information furnished by the United States Bureau of Census. Of the 202 deaths from lead poisoning in persons under 15 years of age which were reported in the entire United States registration area (1936 population about 128,052,000), 49 deaths, or 24.3 per cent of the total, were from the city of Baltimore (1936 population about

TABLE 2.—*Number of Reported Deaths from Lead Poisoning by Age Groups in Selected States and in the United States, 1931-1940*

	All Ages	Under 15 Years	15 Years and Over
Total United States registration area	1,055	202	853
California	51	2	49
Illinois	70	6	64
Maryland	60	49	11
City of Baltimore *	56	49	7
Massachusetts	64	31	33
Michigan	30	3	27
Missouri	33	1	32
New Jersey	56	10	46
New York	142	36	106
Ohio	81	5	76
Pennsylvania	83	18	65
Remainder of United States registration area	385	41	344

* The population of the city of Baltimore is about 47 per cent of the total population of the state of Maryland.

838,700), which constitutes only 0.65 per cent of the population of the United States registration area. Based on cases reported in children during the ten year period 1931-1940, the death rate from lead poisoning in Baltimore would seem to have been about fifty times as high as in the remainder of the general population of the United States. That this situation was not generally appreciated is evident from the following statement, which appeared in a statistical report [3] on lead poisoning:

> A tabulation of deaths from lead poisoning in eighteen American cities in which lead-using industries are more or less concentrated gives the following results: In the aggregate there were 179 deaths during the period 1929-36, of which 30 occurred in New York City, 29 in Baltimore, 28 in Philadelphia, 22 in Boston, 16 in Chicago, 15 in Cleveland and 10 in Providence.

This statement implied that the relatively large number of deaths from lead poisoning in Baltimore had occurred as a result of industrial exposures. However, the implication was not in accordance with the known

TABLE 3.—*Lead Poisoning in Children in Baltimore, 1931-1940*

Age, Years	Total	White		Colored	
		Male	Female	Male	Female
Total	135	25	19	46	45
Under 1	1	..	..	1	..
1	26	6	7	8	5
2	45	15	7	10	13
3	13	..	3	4	6
4	10	3	1	2	4
5-9	27	1	1	15	10
10-14	13	..	..	6	7

facts. Actually 36 cases of fatal lead poisoning were reported in Baltimore during the period 1929-1936. Only 4 of these deaths occurred in adults. On the other hand, 32 deaths, or 89 per cent of the total, were due to nonindustrial lead poisoning; that is to say, they were deaths of children, mostly resulting from the chewing of objects painted with lead-containing paint.

3. Hoffman, F. L.: Lead Poisoning in 1936 and in Earlier Years, Monthly Labor Review, Bureau of Labor Statistics, U. S. Department of Labor, February 1938, Serial No. R. 669.

These facts again demonstrate the general lack of adequate statistical information on mortality and morbidity from lead poisoning, a condition which has been repeatedly mentioned in the literature.[4]

During the period 1931-1940 a total of 135 cases of lead poisoning occurred in children in Baltimore City. The age, sex and color distribution of these children is shown in table 3, which includes both fatal and nonfatal cases. The average age in this group is 4 years. However, the group includes 37 colored children of an average age of 7½ years who were concerned in the 1932 outbreak of lead poisoning associated with the use of storage battery casings for fuel.[2] The average age of the remaining 99 children is 2½ years. Practically all had a history of pica associated with the chewing of objects painted with lead-containing paints. The age specific morbidity rate for lead poisoning during the ten years 1931-1940 based on this group of 99 children is more than five times as high among the colored population (13.7 per hundred thousand) as it is among the white population (2.5 per hundred thousand). The colored group constitutes approximately 19 per cent of the total population.

During the same time 93 cases of lead poisoning occurred among adults. Colored persons were involved

TABLE 4.—*Occupational Distribution of Persons with Lead Poisoning in Baltimore, 1931-1940*

Occupation	Number of Cases		
	Total	White	Colored
Total	228	123	105
Painter	24	22	2
Lead arsenate worker	13	13	..
Acetylene burner	12	11	1
Enamel worker	10	10	..
Paint maker	8	5	3
Gasoline tank cleaner	8	8	..
Junk metal worker	5	1	4
Solder grinder	3	3	..
Printer	1	1	..
Miscellaneous occupations	5	4	1
Nonoccupational, adult	4	1	3
Nonoccupational, children	135	44	91

in 14 of these cases. The age specific morbidity rate among colored adults over the ten year period (1.2 per hundred thousand) is less than the rate among the white persons (1.6 per hundred thousand). For the five years 1936-1941, which reflect the increase in our knowledge of the occurrence of lead poisoning (table 1), the corresponding morbidity rates in adults are somewhat higher (1.5 per hundred thousand in the colored group and 2.5 per hundred thousand in the white group).

An occupational distribution of persons with lead poisoning is shown in table 4. The largest single group includes painters. It must be pointed out, however, that a number of painters in this series had relatively mild lead intoxication. Nine of the 13 lead arsenate workers were white women employed in packing operations. One of the enamel workers was a white woman engaged in spraying enamel frit. There were no other cases of lead poisoning of occupational origin among women. The junk metal workers operated furnaces for reclaiming scrap lead in junk yards. The acetylene burners employed torches in shipbreaking. The printer

4. Lanza, A. J.: Epidemiology of Lead Poisoning, J. A. M. A. **104**: 85 (Jan. 12) 1935. Hamilton, Alice: The Prevalence of Industrial Lead Poisoning in the United States, chapter XX in Lead Poisoning, by J. C. Aub, L. T. Fairhall, A. S. Minor and Paul Reznikoff, Medical Monographs, vol. 7, Baltimore, Williams & Wilkins Company, 1926. McCord, C. P., and others: Lead Poisoning in the United States, Am. J. Pub. Health **19**: 631 (June) 1929.

spent a portion of his daily time remelting type and skimming and sifting dross from the remelt pot. The list includes one nonoccupational case, that of an adult who was given lead and opium pills in the treatment of tuberculous enteritis.[5]

SUMMARY

1. Largely as a result of studies associated with a follow-up of a blood lead laboratory service, it has been possible for the Baltimore City Health Department to acquire relatively accurate information concerning the incidence of lead poisoning in the community in recent years.

2. In the ten year period 1931-1940 at least 228 cases of lead poisoning are known to have occurred in Baltimore. Of these, 93 cases, or 41 per cent, involved adults, and 135 cases, or 59 per cent, occurred in children. There were 7 fatalities among the adults, as compared with 49 fatalities among the children.

3. Lead poisoning was of more frequent occurrence among colored children than among white children. Adult lead poisoning of occupational origin was more common among the white population than among the colored.

ECLAMPSIA AT THE UNIVERSITY HOSPITAL

1926 TO 1941

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During the sixteen years between Jan. 1, 1926 and Dec. 31, 1941, 80 eclamptic patients were observed and treated at the University Hospital. Thirty-seven women were admitted in the convulsive stage, and 43 suffered the seizures after admission; all but 13 of the latter were admitted because of toxemia. Throughout the series, eclampsia was viewed as a medical condition and treatment followed a fairly consistent pattern. This communication deals with the results obtained and involves a discussion of the lessons learned by the experience.

TREATMENT EMPLOYED

The essence of therapy revolves around the clinical observation that eclamptics generally do not have convulsions when the respirations are less than 14 to 16 per minute and the deduction therefrom that there is some relationship between the respiratory exchange and the appearance of the convulsive episodes. Heavy sedation was therefore employed, and the dosage was regulated solely by the effect on the respiratory rate, which was reduced to 12 per minute as quickly as possible. The most commonly employed drug was morphine, which was administered in all but 6 very mild cases in amounts varying from ¼ grain (0.016 Gm.) to 6⅝ grains (0.44 Gm.), with the average approximating 1¼ to 1½ grains (0.08 to 0.1 Gm.). Chloral hydrate (53 cases), magnesium sulfate parenterally (28 cases) and various barbiturates (15 cases) were employed to complement the morphine; these drugs are all respiratory depressants.

Other forms of therapy employed included venesection in 18 cases, mostly in the earlier years, spinal tap in 2, oxygen in 11 (7 during 1941), concentrated dextrose solutions intravenously in 49 and concentrated sucrose solutions in 10, mostly since 1932. Scopolamine hydrobromide, atropine, theophylline with ethylene diamine and mercuropurin were each given to 1 to 3 patients on special indication. Transfusions were employed twice in the presence of shock and hemorrhage, but both patients died.

MATERNAL DEATHS

The total maternal deaths numbered 7, a fatality rate of 8.75 per cent. Six of the 7 women who died had antepartum (4) or intrapartum eclampsia (2) before admission, while the other was a 45 year old primigravida who was delivered spontaneously, had a single convulsion one hour and twenty minutes later and died from uncontrollable uterine hemorrhage and shock (fibroid uterus) four hours after the seizure. Autopsy was permitted for 3 of the other 6 patients and showed the deaths to be due to (1) infection (Escherichia coli septicemia) after vaginal hysterotomy, (2) bilateral pneumonia with infarction of the anterior lobe of the hypophysis (normal liver) and (3) cardiac dilatation, pulmonary edema and eclamptic liver. Two of the patients for whom necropsy was not permitted died of shock (they had been brought 30 and 150 miles respectively to the hospital while having frequent convulsions), while the third had clinical failure of the left side of the heart and pulmonary edema unrelieved by venesection.

FETAL SURVIVAL

The survival rate among the 84 infants (4 sets of twins) was 53.6 per cent (45 lived), with the salvage according to birth weights as indicated in the accompanying table.

Exclusion of the 18 "previable" children, weighing less than 1,500 Gm., among whom there was only 1 survivor, leaves 66 with a reasonable chance of survival. The actual salvage was 44, or 66.7 per cent. Three of the other 22 children died during the first day, while 19 were stillborn, including 9 that were macerated. The toxemia appears, therefore, to have been the direct cause of the high fetal death rate either by inducing or necessitating premature delivery or by producing intrauterine fetal death.

INCIDENCE

During the interval under consideration there were 15,327 deliveries, and the incidence of eclampsia was 1 in 191. The yearly incidence varied from 1 in 57 deliveries in 1927 to 1 in 956 in 1940, for no determinable reason. The greatest numbers of cases occurred in May (11) and June (10) and the smallest in August (2). There were 52 in the first six months as against 28 in the second half of the calendar years. This distribution supports the old clinical observation that the late spring months show an increased eclamptic incidence. Three of the fatalities occurred in the first six months (3 in 52, or 1:17), while there were 4 in the second six months (4 in 28, or 1:7). This suggests that eclampsia may be less severe when it is more frequent.

PARITY

Primigravidity is recognized as predisposing to eclampsia, and 59 women (73.7 per cent) of this series had not previously been pregnant. Greater interest, however, attaches to the 21 multigravidas in whom convulsions developed. The number of previous pregnancies varied from one to twelve, and 13 women had had three or more. According to the histories, 12 had not had toxemia previously, although the majority had had

5. Geraghty, W. R.: Encephalopathy from the Therapeutic Use of Lead and Opium Pills, J. A. M. A. **110:** 208 (Jan. 15) 1938.

From the Department of Obstetrics and Gynecology, State University of Iowa College of Medicine.

no antepartum care and minor grades of toxemia may have passed unnoticed, while 5 had had nonconvulsive toxemia and 4 eclampsia.

The mortality rate among the multigravidas was considerably greater (14.3 per cent) than in the primigravidas (8.5 per cent), as is consistent with the observation that most of the former group suffered from chronic hypertensive vascular disease, which was aggravated by the pregnancy, and were older. The more severe character of the disease in multigravidas is likewise indicated by the lower infant survival rate, 50 per cent, and the fact that the convulsions tended to develop before the beginning of the last trimester of pregnancy; 8 of the 22 infants weighed less than 1,500 Gm. at birth.

AGE

Eclampsia is a disease of young women, and it is not surprising to find that 33 of the 80 patients were less than 20 years of age. Moreover, in these young women the disease is ordinarily not complicated by preexisting cardiovascular or renal disease, and the prognosis is therefore more favorable. There were no deaths in the age group under 20 years. In the third decade of life (20 to 29 years) there were 28 cases of eclampsia with 3 deaths, 10.7 per cent; in the fourth, 14 cases with 2 deaths, 14.3 per cent, and in the fifth, 5 cases with 2 deaths, 40 per cent.

ONSET OF CONVULSIONS IN RELATION TO LABOR

The chief concern with an eclamptic patient actually in labor is to insure a relatively safe and rapid vaginal delivery after complete dilatation. Labor began spontaneously in 16 of the 43 cases of antepartum eclampsia and was induced, contrary to clinic policy, in 2 of the remaining 27. Among the 25 cases of "intercurrent eclampsia" the interval between the final convulsion and the onset of labor varied from two to seventy-two days but was more commonly two to four days. The actual delivery was spontaneous in 15 women with vertex and in 3 with breech presentations, with low forceps in 6 and with vaginal hysterotomy in 1 (birth weight 365 Gm.).

In the 43 cases in which the convulsions appeared before the onset of labor there were 4 deaths (9.3 per cent), as against 2 deaths (11.8 per cent) in 17 cases of intrapartum eclampsia and 1 death in 20 cases of postpartum eclampsia (5 per cent). Evidence to substantiate the belief that the higher mortality in antepartum and intrapartum eclampsia is attributable to the effect of labor is afforded by a considerable experience with cases of intercurrent eclampsia, in which delivery occurred two or more days after control of the convulsions and disappearance of the coma. There were 25 such cases with 1 death (4 per cent), while in the remaining 18 cases of antepartum eclampsia in which labor began during or shortly after the seizures there were 3 deaths (16.7 per cent). Moreover, the 1 death in the group with intercurrent eclampsia occurred from infection nine days after vaginal hysterotomy for removal of a fetus weighing 365 Gm. The operation was performed eight days after admission to the hospital, which had occurred shortly after two typical eclamptic convulsions with clinical evidence of hypertensive vascular disease. Experience of this character leads inevitably to the conclusion that labor should not be induced during the convulsive stage of eclampsia and that radical methods of delivery should not be employed.

Intercurrent eclampsia naturally carries a high fetal death rate; there were only 6 surviving children (24 per cent) in the 25 cases. Eleven patients with this form of eclampsia went into labor spontaneously or after induction more than seven days after the last convulsion (the longest intervals were forty-three and seventy-two days), but only 2 children (18.2 per cent) survived. In no instance was there a recurrence of the convulsive attacks, and in several instances, including the patient who expelled a 350 Gm. dead fetus after an interval of seventy-two days, the signs of toxemia largely disappeared before delivery occurred. In the usual case this can possibly be explained by death of the fetus, but such an explanation cannot hold for the 2 women who were delivered of living and surviving children seven and nine days respectively after one and eight convulsions.

Obviously the only reason for permitting an eclamptic patient to remain undelivered for more than a day or two after the convulsions and coma have disappeared concerns the possible survival of the fetus. This chance has been shown to be remote and can scarcely balance the risk that continuance of the pregnancy, even when the toxic manifestations are minimal, may produce or aggravate chronic vascular or renal damage. Considerable experience with cases of intercurrent eclampsia dictates the belief that there is no acceptable reason for delaying the induction of labor after the patient is prepared to face delivery with relative safety.

Infant Survival According to Birth Weight

Birth Weight	Total	Died	Survived	
			Number	Per Cent
Under 1,000 Gm.	8	8	0	0.0
1,000 to 1,499 Gm.	10	9	1	10.0
1,500 to 1,999 Gm.	11	8	3	27.3
2,000 to 2,499 Gm.	14	5	9	64.3
2,500 to 3,499 Gm.	33	8	25	75.8
3,500 Gm. and over	8	1	7	87.5
Total	84	39	45	53.6

NUMBER OF CONVULSIONS

The number of convulsions ranged from one to eighteen, with the majority of patients (48) having no more than three. Among these 48 women there were 4 deaths (one, two, two and three convulsions respectively), or 8.3 per cent, while among the 32 women with four to eighteen convulsions there were 3 deaths, 9.4 per cent, after six, nine and eighteen convulsions respectively.

The fetal survival rate, however, was adversely affected by more than three convulsions, so that only 14 of 33 children (one set of twins) survived (42.4 per cent), as against 31 survivors out of 51 infants (three sets of twins) among the women who had no more than three seizures (60.8 per cent). This is consistent with the common observation that the number of convulsions is generally an index of the severity of eclampsia. The fact that the maternal mortality was not significantly increased by the greater number of convulsions may be correlated with the higher stillbirth rate in the latter group; fetal death is known to have a favorable influence on the course of eclampsia.

FEVER AND SHOCK

It is well recognized that the appearance of fever or the development of shock in eclamptic patients adversely affects the prognosis. In this series, 5 of 18 women with temperature elevations above 100 F. died, and 4 of 15 exhibiting shock, manifested by

tachycardia and low blood pressure, succumbed. In 3 of the fatal cases both fever and shock appeared, while only 1 fatality showed neither sign at the time of the convulsions; in this instance death occurred several days later from infection.

COMMENT

The preceding data have established the relatively low maternal mortality rate in a consecutive series of 80 eclamptic patients treated by a routine technic which aims at controlling the convulsive seizures without purposely interfering with the pregnancy. Study of these 80 patients during the eclamptic seizures and later review of their written histories have brought forth certain ideas which appear pertinent.

It is probably significant that only 1 patient died among the 43 whose convulsions developed after admission to the hospital. Five patients died soon after admission either from the toxemia or from some direct sequel. These patients were transported from 30 to 150 miles to the hospital after the onset of convulsions and were admitted in coma. Moreover, 3 of the 5 were in severe shock on admission, while another had early bronchopneumonia. It is difficult to escape the conclusion that the long journey contributed to the unfavorable clinical condition on admission and therefore to the fatal issue. It may even be argued that intensive medical therapy at home or in a nearby small hospital would have been preferable to the longer journey to the larger institution.

In view of the dramatic character of eclampsia, it is easy to understand the tendency toward overtreatment. There is an urge to do everything possible, and consequently therapy becomes so extensive as to be confusing or even dangerous. The primary objectives of medical therapy in eclampsia are to provide adequate sedation and to encourage urinary output. It is also essential that these objectives be attained with as little disturbance to the patient as possible; annoying subsidiary forms of treatment should be avoided unless they seem absolutely necessary, which is rarely the case. The induction of labor and delivery by surgical means fall definitely into the latter category, and the poorer results obtained when they are employed can be adequately explained by the fact that they place additional burdens on an organism which is already strained to handle the underlying metabolic or toxic disturbance.

Morphine is a reliable, powerful and available sedative, and little, if anything, is to be gained by supplementing its effect with other drugs, which have no specifically different action and probably are not synergistic in the true sense of that term. A personal preference for any other sedative does not alter the argument, provided the dosage is sufficient to produce the desired result: reduction of the respiratory rate to the neighborhood of 12 per minute.

Hypertonic sugar solutions are effective diuretic agents and rarely fail to promote urinary secretion. Dextrose is probably to be preferred over sucrose, in spite of the more potent action of the latter, and 25 per cent solutions are adequate. Occasionally venesection is valuable, but its use should be limited to patients with full, bounding pulses, and circulatory collapse must be kept in mind.

SUMMARY AND CONCLUSIONS

In a consecutive series of 80 eclamptic patients treated medically there were 7 deaths, 8.75 per cent. Increasing age and parity influenced the prognosis unfavorably.

The uncorrected fetal mortality rate was 46.3 per cent. Exclusion of all "previable" children, weighing less than 1,500 Gm., reduced the fetal and infant fatality rate to 33.3 per cent.

The maternal deaths attributable to the toxemia (5 in number) occurred exclusively in women with antepartum or intrapartum convulsions, who were transported considerable distances to the hospital and who arrived in shock or on the verge of circulatory collapse.

Eclampsia is a medical problem which is best combated by sedation and by attempts to produce diuresis.

The eclamptic patient should be disturbed as little as possible.

Treatment at or near home is preferable to a long trip to a hospital, which too frequently induces circulatory collapse.

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RADIUM THERAPY FOR VULVAR CONDYLOMAS

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The total removal of condylomata acuminata of the vulva and vagina and the complete protection against a recurrence is a problem which occasionally confronts the gynecologist and obstetrician. The prevalent therapy by excision, cauterization and the like with the hazard of serious loss of blood, excessive scarring and temporary incapacitation has not proved satisfactory. Disagreement on treatment is fostered by the views of various authorities as to the most satisfactory method. The subject is discussed only briefly in standard works on dermatology and on gynecology and in the literature very rarely. To evaluate the use of radium on condylomata acuminata 11 cases have been observed frequently and over a prolonged period. The procedure was not only successful but also convenient, safe and simple and with minimal inconvenience for the patient. This report comes forth not because it is new but because detailed description in the literature to guide the therapeutist was not found.

It is acknowledged generally that condylomata acuminata of any extent increase the chance of abnormal blood loss or puerperal infection in association with delivery. Therefore, if these increased hazards can be eliminated or reduced in the removal of the condylomas, treatment during pregnancy is important and frequently urgent. Such therapy should be free from danger to the fetus and to the patient.

LITERATURE

Ormsby [1] states that the disease is autoinoculable and contagious, although the causative organism has not yet been identified. It has been suggested that this condition may be caused by a virus. Until recently condyloma acuminatum or venereum had been looked on as probable evidence of a present or prior gonococcic gonorrheal infection and hence the lay name of venereal warts. Nowadays it is acknowledged that any chronic or persistent vulvovaginal discharge (venereal or non-

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1. Ormsby, O. S.: Diseases of the Skin, Philadelphia, Lea & Febiger, 1937.

venereal) may precede or be concomitant with these "warts," which is in perfect accord with the observation of this report.

Various methods of treatment have been described. Surgical excision seems to be the most popular. It may however, be associated with excessive and even serious

Fig. 1.—Wide distribution of condylomas six days after delivery of a woman aged 20 at time of first radium therapy.

loss of blood, especially if the lesions are multiple and extensive, in addition to the aforementioned inconvenience to the patient. The Crossens [2] emphasize the potential hazard of excessive loss of blood and also the possible development of a hematoma even in spite of good surgical technic. According to them, anal condylomas are not satisfactorily treated by radiation. Recurrences are frequent after surgical removal. Treatment with keratolytic agents, such as salicylic acid and resorcinol, and with chemical caustics and acids has also been advised. Results with these agents are not only hazardous but also unpredictable and do not safeguard against recurrence. Ormsby suggests that roentgen therapy is valuable but does not elaborate further. Curtis [3] states that radium and roentgen rays have been employed but states further that not enough cases have been recorded to justify conclusions. Schmitz [4] records a series of 13 cases in which roentgen therapy was used with recoveries in 11. In this series an average dose of 450 roentgens was used. The Suttons [5] suggest a dose of 1,200 roentgens to individual warts. The shifting attitude by Andrews [6] is evidenced by his advice to use an acid or a cautery for small lesions and subsequent treatment by "subintensive" doses of roentgen rays. For the extensive lesions he suggests from 50 to 100 millicurie minutes for each square centimeter, or a total of 500 to 1,000 roentgens filtered through 3 mm. of aluminum.

Korbler [7] reports an extensive formation of condylomas on the penis which was almost completely removed in 1 instance by radium.

According to Adair,[8] the first therapy should be directed toward removing the predisposing cause and subsequent excision or coagulation of the warts. He suggests that irradiation may be used and intimates that this therapy may become the one of choice.

It should be borne in mind that condylomas which develop during pregnancy vanish spontaneously at times after parturition.

PROCEDURE AND RESULTS

In a series of 11 cases, 6 obstetric and 5 gynecologic, topical application of radium was the sole means of treatment. The series is small because these lesions are seldom seen in our clinic. A few of the patients were referred to us by the Municipal Social Hygiene Clinic (Chicago) for the purpose of making this study.

While none of the lesions were extensive in the strict sense, they caused the patients enough distress to seek relief. Six of the patients had had a chronic vaginal discharge and tests established the diagnosis of vaginal trichomoniasis. One had a history of gonorrhea previously, while the remaining 4 had negative histories and showed normal clinical and laboratory conditions on examination. The ages ranged between 15 and 40,

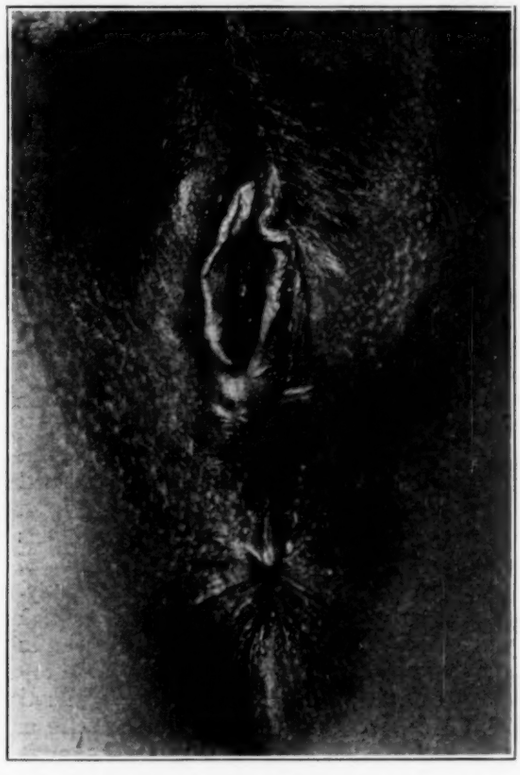

Fig. 2.—Same patient as in figure 1 fifteen weeks later. A total of 225 milligram hours of radium was given: 150 milligram hours of radium at first application and 75 milligram hours of radium nine weeks later. No recurrence to date.

2. Crossen, H. S., and Crossen, R. J.: Diseases of Women, St. Louis, C. V. Mosby Company, 1935.
3. Curtis, A. H.: Obstetrics and Gynecology, Philadelphia, W. B. Saunders Company, 1933.
4. Schmitz, Henry, in Gynecology and Obstetrics, edited by C. H. Davis, Hagerstown, Md., W. F. Prior Company, Inc., 1934, vol. 3, chapter 20, p. 138.
5. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin, St. Louis, C. V. Mosby Company, 1939.
6. Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1938.
7. Korbler, J.: Radiumtherapie der spitzen Kondyloma, Strahlentherapie **61**: 137-139, 1938.
8. Adair, F. L.: Obstetrics and Gynecology, Philadelphia, Lea & Febiger, 1940.

and the patients, with 1 exception, were either nulligravidas or primigravidas. The presence of the lesions had been known to the patients from one month to two years.

The actual procedure was extremely simple. The dosage had to be worked out by the trial and error

Fig. 3.—Condylomas principally on left labium majus of woman aged 40 four days after delivery at time of radium therapy.

method; we started out with small dosages and repeated the applications when necessary until it was learned how large a dose was necessary to eliminate the lesions entirely. The radium at our disposal was in two capsules of 50 mg. each. The radium was contained in 0.5 mm. platinum capsules and was filtered through 1 mm. of aluminum. The object in using a large amount of radium was to reduce the time of application. A few patients had treatments in the hospital during the puerperal period, but most of them were treated in the outclinic. With the patient on a table or cot, the radium in its container was placed directly over the portions of the vulva affected and held in place with strips of adhesive and a perineal pad. The patient rested quietly in the supine position with the legs and thighs extended. It was unnecessary to remove the pubic or genital hair. When the radium was not sufficiently close to all the condylomas it was moved from one site to another for the estimated dose. Periodic inspections were made to be sure that the radium had not become displaced. Each patient spent from one to two and one-half hours in the clinic for the first treatment. Repeated applications were made in those instances in which the first treatment was insufficient.

In 1 instance in which the lesions were confined to a small area only 75 mg. hours of radium was necessary to produce complete retrogression. In another case with extensive involvement 450 mg. hours had to be used. The latter was divided into two applications one month apart. The optimal dose seems to be about 100 mg. hours to an area of about 4 sq. cm. The adjacent picture and the footnotes should give some relative idea on dosage and response in these respective instances.

For two to three weeks after the treatment a few of the patients showed a mild localized erythema of the vulva which was entirely asymptomatic. Aside from the dermal reactions, undesirable side effects were not noticed. There was no obvious change in the growth of hair.

Six patients made their return visits from fifteen to fifty-two weeks after treatment. It was only through persistence that they were persuaded to return for an examination. With their complete relief it was believed by them that other visits were unnecessary. In view of the early loss of symptoms in those under close observation, the retrogression or disappearance should occur gradually and within a few weeks at most. If this should not occur, more radiation is indicated. Most of the members of this group have been followed after complete involution of the condition for several months to over a year and in not 1 has there been a recurrence.

From the data studied it is definite that the period of symptoms and perhaps the age of the condylomas are unrelated to the response after exposure to radium. By comparison it seems equally evident that the variation in response is more directly related to the extent of the lesions; that is, the greater the area or extent of involvement, the slower and less yielding to a given dosage of radium.

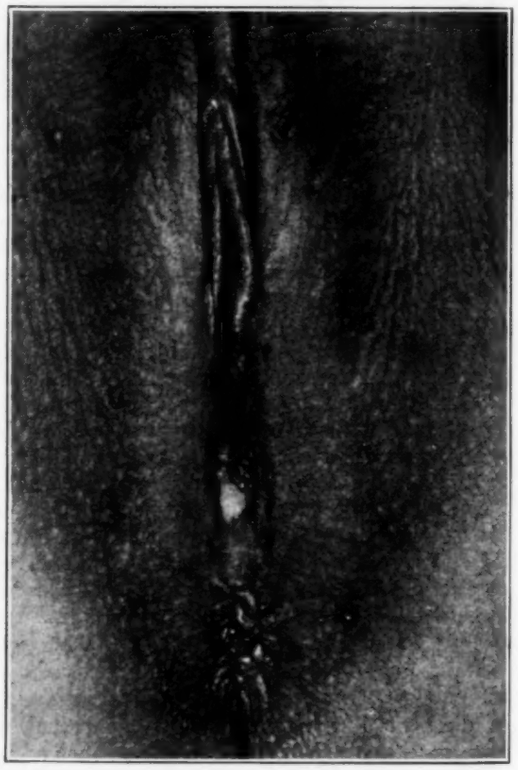

Fig. 4.—Same patient as in figure 3 eight weeks later. A total of 200 milligram hours of radium, all in one application. No recurrence to date.

The dosage is important and the radium should be properly screened to avoid an undesirable cutaneous reaction. Repeated application at three or four week intervals seems justified when the regression is not progressing sufficiently well.

CONCLUSIONS

This method of radium application is simpler and safer than chemical or surgical therapy. It avoids the hazard of anesthesia and loss of blood from surgery and, moreover, does not incapacitate or inconvenience the patient. Likewise, it should be more economical for the patient. It can be carried out in the physician's office in any community in which radium is available. No particular skill is required other than reasonable understanding of the action of radium and the methods of application, and there is apparently no danger when minimal doses are used. Perhaps the rays of radium are more applicable than those of roentgen rays. However, roentgen therapy should give good results when used in proper doses and sufficiently localized.

Originality is not claimed for this therapy. The report is given in the hope that others may profit by these observations.

POISONING BY MEGALOPYGE OPERCULARIS ("PUSS CATERPILLAR")

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A recent experience of being called to the bedside of a patient suffering from severe local and generalized symptoms after contact with a caterpillar larva has led to a search of the literature for reports on similar cases. This caterpillar larva was identified as Megalopyge opercularis, or "puss caterpillar." Only 2 cases of symptoms due to Megalopyge opercularis [1] were found in the literature. These 2 cases and one of symptoms due to Lagoa crispata,[2] a member of the same family, are reviewed in this paper, with the case which I observed.

It is believed that such cases occur much more frequently than the literature indicates. The scarcity of case reports may be due to many persons not reporting to a physician for treatment, or it may be due to the etiologic factor going unrecognized. Goodwin, Krafka and Mulherin reported 2 cases in Augusta, Ga., in 1937 and mentioned 3 other cases that had been brought to their attention. A recent communication from Dr. Joseph Krafka Jr. indicated that detailed reports on the latter 3 cases were not available. Several other authors mentioning cases have been written to for case reports. In all instances the case reports seem to be lacking.

In view of the possibility that these and other poisonous caterpillars may be on a numerical increase and the probability that poisoning from them occurs much more frequently than is realized or made a matter of record, a study of case reports, symptoms, cause and treatment seems warranted.

The insects producing the condition under discussion belong exclusively to the order Lepidoptera. They produce the condition by means of the poisonous hairs of the larvae. Present knowledge on the subject is superficial. The many medical textbooks that refer to it seem to do so by quoting from one another, and the details are meager and inadequately worked out.

From the medical service, Walter Reed General Hospital.

1. Goodwin, Thomas; Krafka, Joseph, Jr., and Mulherin, Philip: Caterpillar Bite (Megalopyge Opercularis), J. M. A. Georgia **26**: 157 (April) 1937.
2. Beyer, George E.: Urticating and Poisonous Caterpillars, Quart. Bull. Louisiana State Board of Health **13**: 161 (Sept.) 1922.

CLASSIFICATION AND CHARACTERISTICS

The classification of Megalopyge opercularis may be outlined as follows:

Lepidoptera (the moths): suborder Frenatae—
Family Megalopygidae (the flannel moths)—
- Lagoa—
  - Crispata
  - Physidefera
- Megalopyge opercularis [5]

Megalopyge opercularis is referred to by various names: "puss caterpillar," "Italian asp," " 'possum bug" and, by the Mexicans, "perrito," meaning little dog.[4]

Comstock and Herrick's diagram of an old cocoon with a hinged lid (fig. 1), Holland's [5] picture of the puss caterpillar moth, Megalopyge opercularis (fig. 2), Bishopp's picture of eggs of the puss caterpillar (fig. 3), Goodwin, Krafka and Mulherin's picture of a megalopyge (fig. 4) and the denuded caterpillar showing spines (fig. 5) are reproduced.

The specimen shown in figure 4 "bit" the patient in case 1, reported by Goodwin, Krafka and Mulherin. The larva has a very short thick body, which is fleshy and completely covered by long silken hairs which are tawny or brown and give a convex form to the upper side. Numerous short spines are interspersed among these long hairs. It is these spines that produce the severe symptoms when they come in contact with the skin.

Apparently the full grown puss caterpillar spins a tough cocoon which is attached to a twig or other suitable object. Within its cocoon the larva hibernates until the early spring, when pupation takes place, and the imago emerges in April, May or June. The moths mate soon after becoming dry. The female lays eggs usually on a leaf nearby. Incubation ranges from four to eight days. The larva breaks or eats away part of the egg. The young larvae feed on the leaf.[4]

DISTRIBUTION

Holland [6] states that the moth is found in Georgia and the region of the Gulf states. Comstock and Herrick [3] state that it is found from North Carolina to Texas. Bishopp [4] states that it has been found as far north as Virginia. I have found no reference to indicate that Megalopyge opercularis exists as far north as Maryland, where my patient was "poisoned." Another genus of the same family, Lagoa crispata, ranges from Massachusetts southward along the coast.[4]

The larva is a general feeder. It may be found on oak, elm, plum and sycamore, in truck or flower gardens and in orchards, and, as in case 3, on corn. With this wide distribution, the possibilities for frequent incautious contact can be readily appreciated.

METHOD OF INFLICTING DAMAGE

The larva is equipped with straight, sharply pointed, hollow spines. Beyer [2] could not demonstrate poison glands but found one secretory cell embedded in the hypodermis and proportionate in size to the spine which it supplies. The fluid from this secretory cell fills the hollow spine. Poisoning by such spines is accidental or occurs with unguarded handling and subsequent pricking of the skin by the spines. (It is to be noted that Beyer was not describing Megalopyge opercularis spe-

3. Comstock, Anna B., and Herrick, G. W.: Manual for the Study of Insects, Ithaca, N. Y., Comstock Publishing Company, Inc., 1931, pp. 191, 197.
4. Bishopp, F. C.: The Puss Caterpillar and the Effects of Its Sting on Man, Department Circular 288, U. S. Department of Agriculture, Washington, D. C., September 1923.
5. Holland, W. J.: The Moth Book, 1922, p. 306, plate XXXVIII, specimen 25 (from collection of Abbot and Smith).
6. Holland: The Moth Book, p. 369.

cifically, but the fundamental principle of the poison apparatus, which may vary somewhat in the different species.)

Riley [7] investigated the effect of the spinelike hairs of Euproctis chrysorrhoea (larva of the brown tail chrysorrhoea moth). He demonstrated "the fact that if nettling hairs are mingled with blood, they immediately produce a change in the red corpuscles. These at once become coarsely crenated and the rouleaux are broken up in the vicinity of the hairs. . . . It [the effect] could not be produced by purely mechanical means."

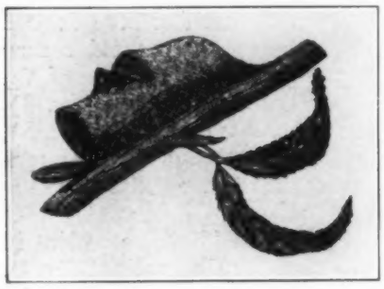

Fig. 1.—Old cocoon of Megalopyge opercularis, after Comstock and Herrick.[3] "The cocoons are of a firm, parchment-like texture, covered with a thin web of rather coarse threads. Mixed with the silk of the cocoon are hairs of the larva."

Although Riley's work was done with another type of poisonous larva, it may point the way to the reasons for the generalized symptoms from Megalopyge opercularis.

It becomes obvious that these nettling larvae possess not only mechanical but physiologic means of defense. The need of determining the exact toxic principle involved is apparent.

REPORT OF CASES

The first 2 cases were reported by Goodwin, Krafka and Mulherin.[1] The third case is Beyer's [2] report of his symptoms when he accidentally put his hand on one of his specimens of Lagoa, another species of the family Megalopygidae. The fourth case is mine.

Case 1.—"Patient of Dr. Thomas Goodwin. On Oct. 2, 1936, the patient, a man and an employee of the city sanitary department, while cleaning up rubbish on a vacant lot, was bitten by a caterpillar. He complained of a severe pain at the bite and a general burning sensation 'all over.' An injection of [epinephrine] relieved the pain for a time, only to return when the effect of the [epinephrine] had worn off. A second injection of 10 minims at the emergency room of the University Hospital seems to have taken care of the situation, since the patient did not return."

Fig. 2.—The puss caterpillar moth, Megalopyge opercularis, after Holland.[5] "The male has a wing expanse of about one inch and the female of about 1½ inches. The forewings are umber-brown at the base, fading to pale yellow outwardly; they are marked with wavy lines of white and blackish hairs, and the fore margins are nearly black."

Case 2.—"Patient of Dr. Philip Mulherin. On Oct. 7, 1936, the patient, a white girl, was climbing over a fence. The caterpillar got on her finger. She felt a sharp pain and ran into the house with the caterpillar still clinging on. Her mother knocked the worm to the floor. As she did so she too felt a slight sting. When the patient was seen about thirty minutes later she had a pulse of 120, normal temperature, and complained of severe pain at the site of the bite. The area was red with a slightly elevated papule in the center. The epitrochlear nodes on the same arm could be felt. She was given 1/20 grain of morphine, after which she went to sleep. She was well the next morning and went to school."

7. Riley, W. A., and Johannsen, O. A.: Handbook of Medical Entomology, 1915, pp. 49-50.

Case 3.—Dr. George E. Beyer described his experience on accidentally contacting a specimen of Lagoa crispata as follows:

"At about half past 5 the writer accidentally put his right hand on a piece of cloth on the table on which the caterpillar had been placed after the drawing was completed. Immediately an intense burning sensation was felt half an inch in front of the wrist joint. The caterpillar was sitting on the cloth, and the hand must have been laid upon it. A few minutes after, a sensation of numbness set in which extended from the tips of the outer two fingers along the inner side of the forearm to the elbow. This numbness, however, was soon superseded by actual pain, which involved the inner side of the whole arm up to the shoulder. The pain steadily increased in intensity and was followed by severe nausea. Now, either as a direct influence of the poison or due to severe pain and the nausea, a condition of restlessness manifested itself which I did not seem to be able to overcome. Although I could not ascertain any actual febrile symptoms, my condition was that of a sick man. The pain in the wrist, elbow and axilla was now so intense that I took 20 grains

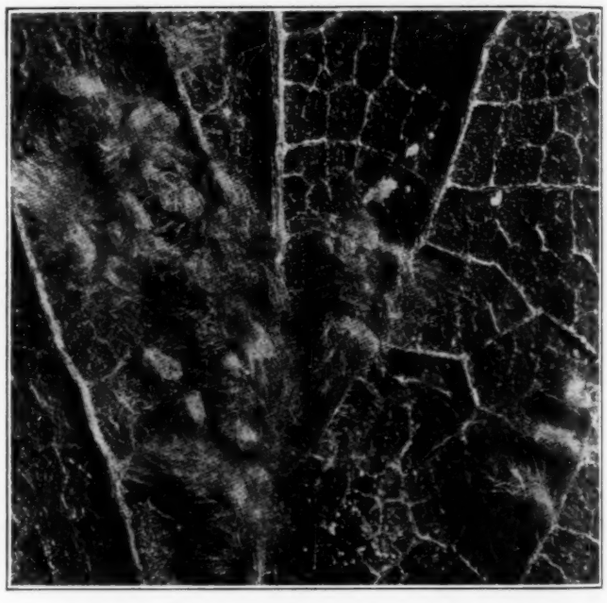

Fig. 3.—Eggs of the puss caterpillar on a leaf, covered with hairs from the body of the moth, after Bishopp.[4]

of [acetylsalicylic acid]. Notwithstanding the [acetylsalicylic acid] the pain persisted until about 12 o'clock. I went to bed. Upon palpation the lymphatics of the axilla felt drawn and tense but there was no perceivable swelling. Clinically speaking, the effects of the poison of this caterpillar were far more intense than the bite of a ground rattler. On the following morning there was still pain in the wrist, and at the site of inoculation there was still pain . . . , and . . . there had developed five or six bullae."

Case 4.—A white man aged 46 was looking at some property in southern Maryland on Aug. 18, 1941. While walking through a corn field at dusk he felt something on his neck and reached up to brush it off. In a few minutes itching developed and then "wheals." These symptoms were followed by a "cramp in the shoulder" in about ten minutes. The patient said that he had no symptoms of shock even in a mild degree. He sought medical aid locally and was given a "calamine lotion and calcium pills," which he used with no noticeable relief. He then indulged in "quite a wild 50 mile ride to Washington to obtain relief from pain." When seen by me, about four hours after the contact, he was complaining of severe local itching and burning, severe muscle cramps in the right side of neck and the right shoulder region posteriorly and a severe headache.

Examination revealed angry erythematous areas varying in size from that of a dime (18 mm.) to that of a silver dollar (38 mm.), and covering a total surface the size of a hand, located at the junction of the right cervical and the right shoulder region posteriorly. The temperature and the pulse rate were normal. The right cervical and the right scapular muscles were palpably rigid. Aromatic spirit of ammonia was applied locally with "partial relief from pain." Codeine sulfate 1 grain (0.06 Gm.) was required, however, to relax the patient and give him some rest. The muscle cramps caused him the greatest concern and discomfort.

When he was seen the next morning, about twelve hours after the contact, the muscle cramps and headache had subsided. About 3 a. m. a precordial pain which was mild, constant and nonradiating had developed. The contact area showed small vesicles, and the individual "patches" observed the preceding night were differentiated now only by looseness of the skin over them. This skin came off easily, as demonstrated by its absence in several areas which had come in contact with the patient's clothing. In these areas, apparently, the vesiculation had tended to become confluent.

On the second day, August 20, the precordial pain had subsided. An electrocardiogram showed no changes from electrocardiograms taken previously. The local area was now healing much as a first degree burn would be expected to heal. Local healing was not completed until approximately ten days after onset.

Fortunately the patient had saved the offending caterpillar larva, bringing it with him in a glass tube. It was identified as Megalopyge opercularis.

The impression was of poisoning due to contact with Megalopyge opercularis manifested by (1) local symptoms (pruritus, burning pain, erythema, vesiculation and desquamation) and (2) general symptoms (muscle cramps, headache and extreme alarm).

Fig. 4.—Photograph of the larva of the flannel moth, Megalopyge opercularis, after Goodwin, Krafka and Mulherin.[1]

COMMENT ON SYMPTOMS

Symptoms resulting from contact with Megalopyge opercularis fall in two distinct groups, local and general.

Pain, burning, itching, erythema and vesiculation seem to constitute the usual course of events locally after contact with the offending spines. The numbness following the initial pain, which was described by Beyer after his contact with a specimen of Lagoa crispata, was not experienced by my patient and was not mentioned by Goodwin, Krafka and Mulherin in their 2 cases. In case 4 the vesicles became confluent in areas, and peeling and desquamation were severe. The intense burning pain usually persists from one to twelve hours [8] if untreated. The itching is of a "nettle-like" variety.

Matheson [9] in referring to the abundance in which Megalopyge opercularis occurs in some areas states that "at times the schools of San Antonio, Texas, have had to be closed because of the abundance of caterpillars about the grounds." They are apparently capable of producing a cutaneous "rash" almost epidemic in frequency.

As to general symptoms, it is to be noted that in all the cases reported acute illness was apparent. Excitement, alarm and restlessness seem to have been present in all the cases, though in widely varying degrees.

8. Herms, William B.: Medical Entomology, ed. 3, New York, Macmillan Company, 1939.

9. Matheson, Robert: Medical Entomology, Springfield, Ill., Charles C Thomas, 1932.

In case 2 the pulse rate was recorded as 120. The pulse rate was not mentioned in case 1 and was normal in case 4 four hours after contact. Despite the incompleteness of information, it seems logical to conclude that the pulse would be accelerated owing to local pain and to excitement if not to a systemic toxic effect.

The temperature was normal in cases 2 and 4. It was not recorded in cases 1 and 3. Dr. Beyer [2] mentioned 2 cases "occurring in children in which febrile symptoms ran alarmingly high." In both cases, the cause was Lagoa crispata and not Megalopyge opercularis. The respiratory rate was not recorded in any of the cases but appears not to have been of symptomatic significance. A general burning sensation "all over" was mentioned by Dr. Thomas Goodwin in case 1.

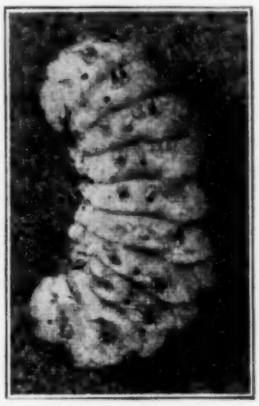

Fig. 5.—Puss caterpillar with most of the hairs removed to show the clusters of spines, after Bishopp.[4]

Muscle cramps, which were the most distressing symptoms in my case, were not mentioned in the other reports. Headache was likewise severe in case 4 and not in the other cases. Nausea and vomiting did not occur in the 3 cases in which the offender was Megalopyge opercularis. In Beyer's case, due to Lagoa crispata, severe nausea was present.

Swelling of an extremity following contact on the hand or wrist was mentioned by Herms.[8]

In case 4 the symptoms were apparently much more severe than in cases 1 and 2. This brings up several possibilities: (1) variation in the degree of toxicity in individual cases due to variation in the amount of toxic materal received, (2) variation in individual reactions to a given toxic material and (3) variation in symptoms dependent on the part of the body inoculated. Herms [8] mentioned that symptoms from contact in the region of the neck are much more severe. Bishopp [4] mentioned a patient "who was stung severely on the neck and completely incapacitated, being confined to the hospital for six days." The contact in case 4 was in this region, and this fact alone may account for the severity of the symptoms.

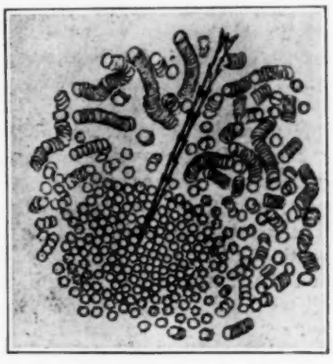

Fig. 6.—Effect of the poison on the blood corpuscles of man; from Riley and Johannsen,[7] after Tyzzer.

It is apparent that the victims of Lagoa crispata have many symptoms in common with those of Megalopyge opercularis, though the symptoms may differ somewhat in type and in degree.

Herms [8] referred to the cocoons as possessing spine-like hairs and mentioned the possibility that they might be blown about, thus coming in contact with the skin, being inhaled or being swallowed. As for their being a source of pulmonary irritation or congestion, this may be another item for the allergists to add to their already overburdened lists of possible causes for seasonal or other unexplained asthma or bronchitis.

TREATMENT

Patient 1 was given 10 minims (0.6 cc.) of epinephrine hydrochloride solution with relief of pain. It was necessary to repeat the dose later.

Patient 2 was given 1/20 grain (0.003 Gm.) of morphine sulfate, after which she went to sleep.

Patient 3 took 20 grains (1.3 Gm.) of acetylsalicylic acid without relief.

Patient 4 applied calamine lotion locally and took calcium tablets without relief; later aromatic spirit of ammonia was applied locally with partial relief, but codeine was required for relief of pain and for rest.

It appears that relief of symptoms must be obtained by means of a drug having a generalized effect, such as epinephrine, morphine or codeine. Much remains to be learned concerning the proper handling of the patients for the most effective alleviation of their symptoms.

CONCLUSIONS

1. Megalopyge opercularis larva is capable of producing poisoning.
2. It is widely distributed in the Southeastern states and is possibly spreading to neighboring areas.
3. It may be found on a wide variety of plant life.
4. June through September are the months during which it is most likely to cause trouble.
5. Both local and general symptoms may be produced. The local symptoms are burning pain, itching and the appearance of whitish and reddish papules and vesicles. The general symptoms are nervousness, restlessness, headache, muscle cramps, tachycardia and generalized itching.
6. The local application of drugs is of slight or questionable value.
7. Drugs having a general or systemic effect are required; epinephrine, codeine and morphine are the most effective drugs used thus far.

The Humane Application of Medical Knowledge.—The science of medicine, like all science, is a body of knowledge and a technic of intellectual inquiry. The art of medicine, in contrast, is the humane application of this knowledge to the alleviation of human suffering and the promotion of human welfare. It is concerned with human individuals, human hopes and fears. The importance of this fact can hardly be exaggerated. It is one of the tragedies of medicine that the complexities of modern science and of medical technics tend so powerfully to accentuate the impersonality of medical treatment. The great laboratories and gigantic hospitals, the complicated routines of consultation and diagnosis, the need for discipline and the impersonal objectivity which necessarily characterizes all truly scientific inquiry encourage a factory-like routine and a neglect of the human factor. But the patient craves not merely your scientific skill but your human understanding and sympathy. He is in trouble and afraid, afraid to hear your verdict, afraid to face whatever suffering may be in store for him. He wants to know the truth, however grim, yet fears the truth. He turns to you not only for your skill but also for friendliness and courage, sympathy and understanding. Can you remember this in the busy days and nights that lie ahead? Can you imaginatively identify yourselves with the patients and, despite all routine and all weariness, respond to their human needs? Yours is a unique opportunity, as doctors and as nurses, to help your fellow men in times of suffering and loneliness, anxiety and fear.—Greene, Theodore, M.: Medicine in Peace and War, *Virginia M. Monthly*, August 1941.

THE MORPHOLOGY OF SPIROCHAETA PALLIDA IN THE ELECTRON MICROSCOPE

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AND
EDNA B. KEARNY
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The demonstration of Spirochaeta pallida in the electron microscope can be accomplished only after the organisms have been completely immobilized, centrifugated and subjected to repeated washing. Centrifugation and washing are necessary to free the organisms as far as possible from organic material, crystals and other foreign minutiae which interfere with the clear observation of the organism.

The extreme fragility of Spirochaeta pallida, and its rapid immobilization and disintegration under conditions of desiccation, would therefore seem to make its demonstration in the electron microscope a procedure of great technical difficulty.

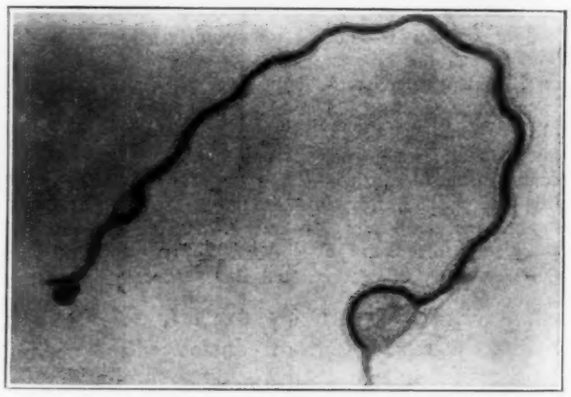


Fig. 1.—View showing continuous envelop or membrane; also end knob.

We have, however, succeeded in demonstrating these organisms in every case examined even under the adverse conditions mentioned. The cases from which specimens have been secured have all been fresh untreated cases of syphilis. Material has been examined from both chancres and secondary lesions. In each case the syphilitic lesion has been repeatedly washed with isotonic solution of sodium chloride. The specimens, as free from blood as possible, were drawn from the lesions by applying a suction cup and gently withdrawing serum from the cleansed surfaces. In order to diminish the number of surface organisms, the first specimens thus aspirated were discarded. The serum thus obtained from the deeper portions of the lesion was first examined in the dark field and only those specimens in which spirochetes alone occurred were subjected to examination in the electron microscope.

PREPARATION OF SPECIMENS FOR EXAMINATION

The serum from the surface of the aspirated lesions was drawn up into a capillary pipet and immediately placed in from 0.5 to 1 cc. of isotonic solution of sodium chloride. Where macroscopic evidence of blood or some particles of tissue were seen, the specimen was sub-

Studies and Contributions for the Departments of Dermatology and Syphilology, Physics and Bacteriology of the University of Michigan.

jected to centrifugation at low speed for ten minutes. Both the sediment and the supernatant fluid were examined in the dark field, organisms being found in both, but to a greater extent in the supernatant fluid. The isotonic salt suspension was then centrifugated at 1,630 revolutions per minute for thirty minutes. The supernatant fluid was discarded, and the sediment resuspended in distilled water. After a second centrifugation at the same speed and time, the sediment was finally suspended in 2 to 3 drops of distilled water, from which suspension specimens for final examination were made.

Fig. 2.—Appearance of end knob.

A small drop of suspension was then placed on a collodion film, supported on a 200 mesh, stainless steel, woven screen. The collodion film is prepared from 1 per cent collodion in amyl acetate. After drying, the wire screen is placed in a specimen holder and inserted into the electron microscope [1] and examined. Each screen is a disk ⅛ inch in diameter and each mesh is about $\frac{1}{300}$ inch square. Approximately twelve squares can be examined in each screen.

As mentioned before, every specimen in which spirochetes were demonstrated in abundance by the dark field yielded a few organisms which survived centrifugation, washing and examination in vacuo necessary to their demonstration in the electron microscope.

As might well be expected, the majority of organisms were fragmented. We were fortunate, however, in being able to study many organisms which were still completely intact. In every case, however, considerable distortion occurred. The most characteristic change which might obviously have been expected was a flattening out of the coils so that the shape of the organism no longer conformed to the tight coiled spring shape of the organism as seen in the living specimen.

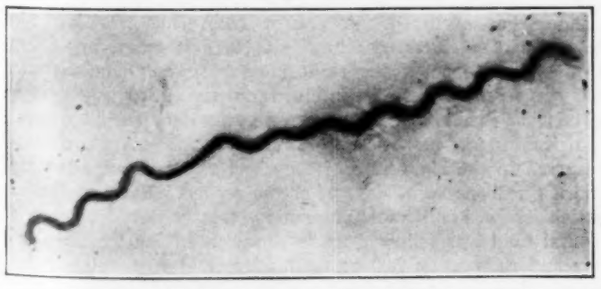


Fig. 3.—Outline of membrane.

The specimens were photographed at a magnification of 8,000 diameters and some details not noticeable by direct examination were brought out by the photographs. Our most interesting finding, which may be seen in figure 1, is what would appear to be a continuous envelope completely covering the organism. This, however, was not a uniform finding, although it was faintly seen in a few specimens and apparently absent in many others.

It is not entirely certain that this appearance is actually due to a membrane. A second possibility is that the appearance is the result of an artefact due to the deposition of material from the suspended fluid which might form around the organism by evaporation. The uniformity of the membrane-like structure, however, as seen in figure 1, together with the lack of débris in this field, makes it seem likely that the appearance is not due to an artefact.

The frequency with which spirochetes appear to be attached to one another at some distance from their apparent ends in the dark field has led to the suggestion that they may be provided with flagella. Our specimens under the high magnification fail thus far to demonstrate the existence of flagella. However, in many specimens a curious knoblike structure was seen at the end of many organisms. Their almost uniform shape and density suggest that these are not extraneous particles of the preparation but a part of the organism itself.

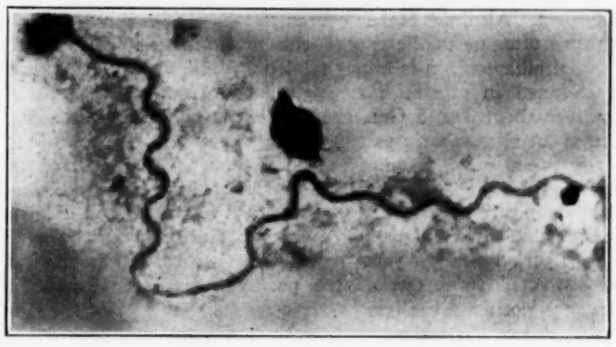


Fig. 4.—Another view of end knob.

COMMENT

Notwithstanding the technical difficulties necessary to demonstrate Spirochaeta pallida in the electron microscope, which necessitate complete immobilization and desiccation, this organism can be successfully examined at very high magnification. As seen in the electron microscope a distortion, lengthening and flattening of the coils ascribable to the technic of preparation occurs.

A complete and continuous membrane-like structure around the organism was demonstrated, the exact nature of which is still somewhat in doubt.

Flagella could not be demonstrated at the end of the organisms, but curious knoblike structures of fairly uniform density seemed to be integrated with the body of the organism. Further studies are being undertaken in the attempt to reduce the distortion by a simplification of the technic of preparation.

While the technic of demonstration is attended with considerable difficulty, the material after implantation on the collodion film can be successfully examined over a period of several days and may be successfully reexamined after exposure to the beam.[2]

1. Morton, L.: The Electron Microscope, J. Bacteriol. **41**: 397-413 (March) 1941.

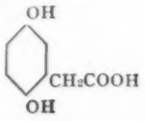
2. Since this manuscript was prepared we have successfully demonstrated the existence of flagella-like processes in several instances, by enlarging our magnifications to the point of 75,000 to 80,000 diameters. With this very high magnification flagella similar to those seen in other bacteria are readily demonstrable. These occur at various points along the course of the organism and not at the two ends. A separate report concerning their occurrence is under preparation.

Clinical Notes, Suggestions and New Instruments

THE INSTANTANEOUS DIAGNOSIS OF ALKAPTONURIA ON A SINGLE DROP OF URINE

ELLA H. FISHBERG, M.D., NEW YORK

Alkaptonuria is a rare metabolic anomaly characterized by the tendency of the urine to turn dark on exposure to air, owing to the fact that the urine contains homogentisic acid. The constitution of this compound, which is chemically 1-4 dihydroxyphenylacetic acid



shows that it may be regarded as a derivative of hydroquinone and points the way to its instant detection in urine.

The urine is made strongly alkaline with sodium or potassium hydroxide and dropped on regulation sensitized photographic paper. Wherever a drop of the urine touches the paper the latter turns coal black instantly, a process exactly similar to that used in everyday photography. This may be done in full daylight.

We have found no other substance present in urine, either normally or pathologically, which is capable of reducing the photographic paper in this manner. Diabetic urine, no matter how high the concentration of reducing sugar, remains without effect. Also, the higher concentrations of vitamin C present in urine after metabolic experiments do not act in this manner.

Since alkaptonuria is either total or absent and the substance is excreted in quantities as high as 16 Gm. a day, usually however about 3 to 5 Gm., the reaction is unlikely to be negative in an alkaptonuric patient at any time.

Specimens of alkaptonuric urine from 3 patients referred to me by Drs. Stanley Benedict and Henry Jaffe were all consistently positive with this test, and my associates and I have been unable to find any other specimen of urine in this hospital over a period of eight years which was positive. Homogentisic acid isolated from one of the positive urines itself gave a strongly positive reaction.

Stuyvesant Park East.

HEMOTHORAX COMPLICATING HEPARIN THERAPY

JOHN W. KEYES, M.D., AND CARL F. SHAFFER, M.D., DETROIT

Heparin has been used as an anticoagulant in the treatment of various conditions involving thrombosis and embolism.

One of the most frequent uses of heparin has been in preventing postoperative embolism with pulmonary infarction. The following report is of a complication resulting from the use of this substance for this condition. That such a complication has not been reported previously is rather surprising when one considers the physiologic changes of coagulation and the pathologic changes of pulmonary infarction.

REPORT OF CASE

M. G., a Negress aged 30, was admitted to the hospital with a diagnosis of uterine fibromyomas. A supravaginal hysterectomy was done with the patient under ethylene and ether anesthesia. After the fifth postoperative day she continued to have daily elevations in temperature, her temperature ranging from 100 to 101 F. There was a proportionate increase in the pulse rate but no leukocytosis. She was asymptomatic, and there were no physical signs of pathologic changes in the lungs.

On the tenth day the patient complained of sharp pain in the lower part of the chest on the right side aggravated by respiration. Physical examination revealed slight relative impairment of percussion and decreased breath sounds in this area. Five days later the patient had a similar type of pain in the lower part of the chest on the left side with physical evidence of another small pulmonary infarction.

During the ensuing two weeks the convalescence was uneventful. At the end of this time, one month after the operation, a third and larger pulmonary infarction occurred in the lower lobe of the left lung. There was impairment of the percussion note and the breath sounds were of bronchial character. No friction rub was heard. The temperature gradually rose to 104 F. and the pulse rate to 120 a minute.

General heparinization was begun three days later. The method of administration used at the Henry Ford Hospital has been previously discussed by Lam.[1] One hundred mg. of the crystalline salt is added to 500 cc. of isotonic solution of sodium chloride and given by the intravenous route. The clotting time is measured by the capillary tube method, and determinations are made at least three times a day. The amount of heparin required to elevate the clotting time to the optimum level of approximately fifteen minutes varies with each patient. In our patient by the proper regulation of dosage this level was maintained after twenty-four hours.

Symptomatic treatment was continued. There was no significant clinical improvement during the next five days. A moderately high temperature and rapid pulse were associated with increasing dyspnea. On the fourth day after heparin therapy was started there was fluid in the left pleural cavity, and twenty-four hours later a thoracentesis was performed. One liter of fluid resembling venous blood in appearance was removed. The erythrocyte count of this fluid was 1,500,000 per cubic millimeter and that of the circulating blood 2,500,000. There was instant relief from dyspnea and tachycardia.

The administration of heparin was discontinued. The patient was given a transfusion of 500 cc. of whole blood and placed in an oxygen tent. Two mg. of menadione and 200 mg. of calcium were given intravenously with the transfusion. At the end of twelve hours the clotting time had returned to six minutes.

Two days later 750 cc. of bloody fluid was removed, and the concentration of erythrocytes was 2,000,000 per cubic millimeter. The prothrombin value of the blood of the circulation was 50 per cent. A second transfusion with added vitamin K was given. Forty-eight hours later a final thoracentesis yielded an additional 250 cc. of bloody fluid. The circulating erythrocytes had increased to over 4,000,000 per cubic millimeter and the prothrombin value to 75 per cent. There was a corresponding improvement in the clinical picture with a gradual fall in temperature and pulse and respiratory rates.

Cultures of the pleural fluid and blood were negative. There was no evidence of bleeding elsewhere as the result of heparinization. A total of 2 liters of bloody fluid was removed from the left pleural cavity.

COMMENT

Since this case report has been completed another similar instance has occurred. A patient recovering from an open reduction of a fractured femur had his first pulmonary infarct in the lower lobe of the right lung. Heparin administration was begun but was discontinued on the third day because of recurring chills and fever. Severe secondary anemia required transfusions at this time. A second pulmonary infarction occurred in the right side of the chest ten days after the first and a third one eight days after the second. Roentgen examination showed bilateral pulmonary infarction. Evidence of pleural fluid was followed up by thoracentesis on the nineteenth day and removal of 600 cc. of bloody fluid resembling venous blood. A second tap yielded another 600 cc. of similar material four days after the first. The red blood cells in this fluid were 1,280,000 per cubic millimeter. This fluid was practically identical to that in the preceding case. The circulating blood prothrombin was 80 per cent. It is quite possible that the hemothorax was present but to a less degree even at the time heparin was being given.

A series of 60 patients have received heparin at the Henry Ford Hospital, three fourths of whom had pulmonary infarction.

From the biochemical laboratory of the Beth Israel Hospital, New York.
From the Department of Medicine, Henry Ford Hospital, Detroit.

1. Lam, C. R.: Heparin Administration, Ann. Surg. **114**: 205 (Aug.) 1941.

The 2 we have described are the first in whom hemorrhage into the pleural cavity has occurred in association with this form of therapy.[2] Priestley and his co-workers [3] have had no serious hemorrhage in their cases.

The value of heparin as a prophylactic agent in postoperative pulmonary embolism and thrombosis has already been established. The occurrence of complications as contained in this report does not outweigh this value and should not deter one from its use.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

ACETYL-BETA-METHYLCHOLINE (See Revised Supplement to New and Nonofficial Remedies, 1941, p. 3).

The following product has been accepted:

MECHOLYL BROMIDE. — Acetyl-beta-methylcholine bromide.—Trimethyl-beta-acetoxy-propyl-ammonium bromide.—The acetyl ester of beta-methylcholine bromide.

Actions and Uses.—The actions of mecholyl bromide are the same as for mecholyl chloride, but because it is less hygroscopic than the latter salt, it is suitable for oral use in tablet form for the treatment of those conditions in which this route of administration of the drug is recognized. See the article, Mecholyl Chloride, N. N. R., 1941, Revised Supplement, page 4. Claims for the use of mecholyl bromide other than by oral administration are not permissible and it should be kept in mind that for those skilled in the technic of ion transfer (iontophoresis) is generally to be preferred in the treatment of chronic ulcers, scleroderma, Raynaud's disease and other vasospastic conditions of the extremities, except possibly the management of vascular spasm from exposure to moderate cold.

Dosage.—Mecholyl bromide is administered in doses of 0.2 to 0.6 Gm. (one to three tablets) two or three times daily; 0.05 to 0.1 Gm. (¼ to ½ tablet) may be sufficient to overcome vascular spasm due to moderate exposure to cold, but in chronic ulcers, scleroderma and Raynaud's disease the larger doses are required. With patients in whom a total daily dose of 2 Gm. (10 tablets) of the drug is not effective, the oral method of treatment should be abandoned in favor of the use of mecholyl chloride by subcutaneous administration or local application by the method of ion transfer (iontophoresis).

Tests and Standards.—

Mecholyl bromide occurs as a white, crystalline, very hygroscopic powder, possessing a slight fishy odor; readily soluble in water and alcohol, insoluble in benzene and ether. The aqueous solution is neutral to litmus. Mecholyl bromide melts at 147-149 C.

Dissolve about 1 Gm. of mecholyl bromide in 10 cc. of water; to a 1 cc. portion add 1 cc. of alcohol and 1 cc. of sulfuric acid and heat in a steam bath, the odor of ethyl acetate becomes perceptible; to another 5 cc. portion add 2.5 Gm. of potassium hydroxide and heat (odor of trimethylamine is noticed); to the remaining portion add an excess of silver nitrate solution (a white, curdy precipitate soluble in ammonia water results). Add 3 cc. of a 20 per cent aqueous solution of sodium perchlorate to 2 cc. of a 10 per cent solution of mecholyl bromide; shake thoroughly and cool in ice water: no precipitate is formed (acetylcholine). Moisten about 0.1 Gm. of mecholyl bromide with a 5 per cent solution of platinic chloride: small rhombohedric plates are formed (distinction from acetylcholine chloride, which forms needles, and choline chloride, which forms no crystals). Dissolve 0.2 Gm. of mecholyl bromide in 2 cc. of sulfuric acid: the solution is colorless (readily carbonizable substances).

Dry about 0.5 Gm. of mecholyl bromide, accurately weighed, to constant weight at 110 C.: the loss in weight does not exceed 1.5 per cent. Incinerate about 0.5 Gm. of mecholyl bromide, accurately weighed, in a platinum crucible: the residue does not exceed 0.1 per cent. Transfer about 0.5 Gm. of mecholyl bromide, previously dried at 105 C. to 110 C., to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Methods of Analysis of the Association of Official Agricultural Chemists: the percentage of nitrogen is not less than 5.6 nor more than 5.9.

Dissolve about 0.4 Gm. of mecholyl bromide, previously dried at 105 C. to 110 C. and accurately weighed, in 15 cc. of water in an Erlenmeyer flask; add 40 cc. of tenth normal sodium hydroxide solution and heat on the steam bath for forty-five minutes; stopper and allow to cool; titrate the excess of sodium hydroxide with tenth normal hydrochloric acid, using phenolphthalein as an indicator: the amount of acetyl (CH_3CO—) is not less than 17.5 per cent nor more than 18.3 per cent.

Transfer about 0.4 Gm. of mecholyl bromide, previously dried at 105 C. to 110 C. and accurately weighed, to a 100 cc. volumetric flask, dissolve in 50 cc. of water, with agitation add 30 cc. of tenth normal silver nitrate solution, add 5 cc. of nitric acid, and finally add water to final volume and mix thoroughly. Filter through a dry filter into a dry flask, rejecting the first filterful; titrate 50 cc. of the filtrate with tenth normal ammonium thiocyanate solution using ferric alum as an indicator: the amount of bromine is not less than 32.9 per cent nor more than 33.5 per cent.

MERCK & CO., INC., RAHWAY, N. J.

Mecholyl Bromide *(Powder):* bulk.

U. S. patent 2,040,146 (May 12, 1936; expires 1953). U. S. trademark 318,783.

Tablets Mecholyl Bromide: 0.25 Gm. (3 grains).

OVARIES (See New and Nonofficial Remedies, 1941, p. 372).

The following estrogen has been accepted:

SMITH-DORSEY COMPANY, LINCOLN, NEBR.

Ampul Solution of Estrogenic Substances *(in Oil):* 1 cc. Each cubic centimeter contains the equivalent of 2,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

Ampul Solution of Estrogenic Substances *(in Oil):* 1 cc. Each cubic centimeter contains the equivalent of 5,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

Ampul Solution of Estrogenic Substances *(in Oil):* 1 cc. Each cubic centimeter contains the equivalent of 10,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

Ampul-Vial Solution of Estrogenic Substances *(in Oil):* 10 cc. Each cubic centimeter contains the equivalent of 5,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

Ampul-Vial Solution of Estrogenic Substances *(in Oil):* 10 cc. Each cubic centimeter contains the equivalent of 10,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

Ampul-Vial Solution of Estrogenic Substances *(in Oil):* 10 cc. Each cubic centimeter contains the equivalent of 20,000 international units of estrone and 0.5 per cent chlorobutanol as a preservative, in peanut oil.

SODIUM ASCORBATE.—The sodium salt of cevitamic acid, $C_6H_7O_6Na$.

Actions and Uses.—Sodium ascorbate possesses the activity of ascorbic acid and is preferred when parenteral therapy is indicated.

Dosage.—Same as for ascorbic acid.

Tests and Standards.—

A solution of sodium ascorbate may be prepared by neutralizing a solution of ascorbic acid with sodium hydroxide. The *pH* of sodium ascorbate solution is between 5.5 and 5.9. The ascorbic acid used in the preparation of Council accepted solutions of sodium ascorbate conforms to the tests and standards for ascorbic acid U. S. P.

GEORGE A. BREON & COMPANY, INC., KANSAS CITY, MO.

Ampul Solution Sodium Ascorbate: 2 cc. Each 2 cc. contains sodium ascorbate equivalent to 100 mg. (2,000 international units) ascorbic acid in sterile aqueous solution.

POLLEN EXTRACTS-MULFORD (See New and Nonofficial Remedies, 1941, p. 44).

The following additional pollen extracts-Mulford have been accepted:

SHARP & DOHME, INC., PHILADELPHIA

Acacia, Annual Salt Bush, Canada Blue Grass, Koeler's Grass and Scotch Broom Grass.

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1941, p. 84).

The following additional dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK.

Ampules Procaine Hydrochloride *(Crystals):* 500 mg.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1941, p. 551).

The following additional dosage form has been accepted:

JOHN WYETH & BROTHER, INC., PHILADELPHIA, PA.

Tablets Thiamine Hydrochloride: 10 mg.

2. Gross bleeding and hemorrhage into the pleural cavity in association with pulmonary infarction has not been previously observed in this hospital. Blood-stained fluid, however, is frequently encountered.

3. Priestley, J. T.; Essex, H. E., and Barker, N. W.: The Use of Heparin in the Prevention and Treatment of Postoperative Thrombosis and Embolism, Proc. Staff Meet., Mayo Clin. **16**: 60-64 (Jan. 22) 1941.

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SATURDAY, JULY 11, 1942

FASTING AND IMMUNITY

Well nourished persons have long been believed more resistant to infections than those who are undernourished or wasted. This belief, however, has been challenged repeatedly. Thus, even as long ago as the American Revolutionary period Underwood [1] pointed out that infantile paralysis most often attacks the best nourished—"finest"—children. Rous [2] in 1911 showed that undernourished fowl are relatively immune to sarcoma virus, while more recently Rivers [3] has suggested a theory to explain "malnutritional immunity" based on the assumption that undernourished cells are lacking in biotin or other stored food materials necessary for the proliferation of viruses. This is a modernized restatement of the historic exhaustion theory of acquired immunity, discarded fifty years ago on the discovery of diphtheria antitoxin.

Recently Sprunt [4] reported that prolonged fasting may cause a tenfold increase in the normal antiviral resistance of rabbits, provided the animals have free access to drinking water during the fasting period. In his investigations of the mechanism of this starvation immunity, Sprunt made careful quantitative studies on the susceptibility of rabbits to intradermal inoculation with vaccinia virus. Several groups of animals were deprived of food but given free access to drinking water for ten days before the test and for forty-eight hours afterward. Control groups were kept throughout the experiment on routine stock diets. Tests of dermal susceptibility were made on each rabbit with seven fourfold serial dilutions of the virus, each animal receiving seven inoculations of each dilution, or forty-nine inoculations in all. The "50 per cent point" [5] was determined for each group, i. e. the viral dilution with which 50 per cent of the injections produced positive lesions. In a typical experiment the 50 per cent point for well nourished control rabbits was a viral dilution of 1:7,080,000. In the fasted animals the dosage had to be increased 9.3-fold (i. e. to 1:759,000) in order to produce the same 50 per cent of takes. The fasted animals, therefore, may be spoken of as being 9.3 times more resistant to vaccinia virus than well nourished controls. This factor varied from seven to twelve in different groups, with an average of about a tenfold increase in normal resistance for all groups.

Such data might be construed as proof that a reduction in the amount of local nutritional reserves in dermal tissues prevented viral proliferation. That other factors are also operative, however, is indicated from the observation that blebs raised by the intradermal injection of the viral suspensions subside much more slowly in the fasted animals than in well nourished controls. Parallel injections with dilute india ink showed that the spread of particulate matter is much more rapid and extensive in well nourished controls and that the decreased spread or "functional encapsulation" in fasted animals is in all cases parallel with the observed decreased infectivity.

Olitsky and Schlesinger [6] showed that the rate of intradermal spread of virus varies inversely with the amount of interstitial water: increased amounts of interstitial fluid reduce the rate and area of spread; partial dehydration increases the rate and area. Sprunt believes, therefore, that the failure of virus to spread normally in starved animals is due to increased amounts of interstitial fluid, since fasting animals tend to increase the amount of their interstitial fluids if allowed free access to drinking water. This increase can be prevented by depriving the animals of water during the fasting period or by intraperitoneal injection of hypertonic salt solution. Sprunt applied both these methods and found that the rate of disappearance of the viral blebs could be increased to normal by either method. In all cases this restoration of the normal rate of spread is accompanied by an almost complete loss of the observed starvation increase in virus resistance. Depriving rabbits of food alone thus increases their resistance to vaccinia virus, largely because such fasting is associated with increased amounts of interstitial fluid.

Assuming that virus particles are autonomous biologic entities, depletion of tissue biotin [7] and other nutritional factors might possibly contribute to this localization of the virus. It is noteworthy, however,

1. Underwood, Michael: A Treatise on the Diseases of Children, with General Directions for the Management of Infants from the Birth, a new edition, London, J. Mathews, 1789.
2. Rous, Peyton: J. Exper. Med. **13**: 397, 1911.
3. Rivers, T. M.: Infantile Paralysis, New York, National Foundation for Infantile Paralysis, 1941, p. 58.
4. Sprunt, D. H.: J. Exper. Med. **75**: 297 (March) 1942.
5. Reed, L. J., and Muench, Hugo: Am. J. Hyg. **27**: 493 (May) 1938.
6. Olitsky, P. K., and Schlesinger, R. W.: Science **93**: 574 (June 13) 1941.
7. Hoagland, C. L.; Ward, S. M.; Smadel, J. E., and Rivers, T. M.: Proc. Soc. Exper. Biol. & Med. **45**: 669 (Nov.) 1940.

that the whole phenomenon of malnutritional immunity can be explained without recourse to the conventional theories of sessile receptors and humoral antibodies.

The evidence now available that prolonged fasting may be immunologically beneficial in certain virus infections if not accompanied by water deprivation is of particular practical importance under war conditions. The results of additional studies now in progress on the immunologic effect of altered water balance in other infectious processes will be awaited with great interest.

ESTROGENIC PRODUCTION OF MAMMARY CANCER

Lacassagne,[1] utilizing a strain of mice whose females developed breast carcinoma in high proportion, transplanted ovaries into previously castrated males on the supposition that mammary cancer did not develop in the males of the strain because of excessive atrophy of the mammary elements. Of 12 animals thus treated, none developed breast carcinoma at the end of one year. The same failure to produce cancer in this manner attended the experiments of Loeb, of Cori and of Murray. Lacassagne injected weekly into mice 10 to 18 days old 0.05 cc. of a solution in oil of 0.6 mg. of crystalline estrone benzoate. All of the 3 males and 1 of the 2 females thus treated exhibited a typical mammary adenocarcinoma in from four to five months. This was apparently the first experimental production of mammary cancer in mice. Workers in this field were now confronted with the problem of determining whether the mechanism of estrogenic production of mammary carcinoma in mice was of a chemical nature or whether it simply furnished an anatomic substratum for animals of a strain with a hereditary predisposition to cancer. Lacassagne[2] submits the following evidence in favor of the cancerigenic mode of action of the hormones: (*a*) Cook and Dodds demonstrated estrogenic properties of certain carcinogenic hydrocarbons of molecular structure more or less related to that of the female hormone, (*b*) the normal rate of cancerization has been increased by estrogen injection to 60 per cent in both sexes, (*c*) cancers other than mammary have been observed and (*d*) Geschickter and Byrnes were able to obtain in a rat, in which mammary cancer is as rare as it is frequent in the mouse, by the action of estrogenic substances, a considerable number of mammary adenocarcinomas both in male and female rats of a selected strain in which, since 1934, no spontaneous cancer had been registered in a colony of 2,000 animals. Against the cancerigenic action of estrogenic substances it was argued that (*a*) cutaneous epithelioma was never produced by the repeated application of estrogenic substance, (*b*) it has been impossible to produce adenocarcinoma of mice in strains not subject to mammary carcinoma by estrogen injection and (*c*) certain synthetic estrogens such as diethylstilbestrol, while capable of producing carcinoma, only remotely resemble the sterols. Lacassagne concludes that cancer can occur only in a mammary gland which has undergone a certain degree of development and that the development of a mammary gland is dependent on the estrogenic and pituitary hormones; but whether these stimulating factors play a direct role in the cancerization process or produce the anatomic development of the mammary gland only sufficient to allow the cancer process to manifest itself is still undetermined.

Geschickter and Byrnes[3] report the occurrence of mammary cancers in 202 of 555 rats of an albino strain which were treated with estrogens. These animals have been maintained on a standard diet and inbred for seven years. Under these conditions spontaneous mammary cancer has not been observed in a colony of more than 5,000 animals. The essential feature of the estrogenic production of mammary carcinoma, according to these authors, is the acceleration or the prolongation of the ripening and maturity in the mammary gland beyond physiologic limits. If this condition is satisfied, carcinoma appears in the breasts of rats which are otherwise immune to the disease, whether these animals are young or old, males or females, castrates or noncastrates. Mammary carcinoma results in rats within a period of one hundred and twenty days when the amount of estradiol benzoate administered daily is from ten to fifteen times the physiologic dose. Geschickter and Byrnes advance two arguments in favor of the physiologic action of the estrogenic production of cancer. One is that carcinoma does not occur at the site of injection but appears instead in the organ which the hormone influences physiologically. The second is that the periods of time required to produce cancer with estrogens of varying chemical compositions are proportional to the physiologic potencies and independent of chemical formulas. Therefore, estrogens cannot be considered primarily from the point of view of chemical character as cancerigenic agents. The most potent estrogen will produce carcinoma in the shortest time. The total amount of estrogen necessary to produce carcinoma may be decreased to one half or to one third if the agent is implanted in the form of pellets rather than injected in oil.

These authors also found that if epithelial regeneration below the cancer producing level has been previously stimulated in the mammary gland it should be possible at some later date to produce cancer more

1. Lacassagne, A.: Apparition de cancers de la mamelle chez la souris mâle soumise à des injections de folliculine, Comptes rend. Acad. d. sc. **15**: 630 (Oct. 10) 1932.
2. Lacassagne, A.: Relationship of Hormones and Mammary Adenocarcinoma in the Mouse, Am. J. Cancer **37**: 414 (Nov.) 1939.
3. Geschickter, Charles F., and Byrnes, Elizabeth W.: Factors Influencing the Development and Time of Appearance of Mammary Cancer in the Rat in Response to Estrogen, Arch. Path. **33**: 334 (March) 1942.

readily. In experiments in which preexisting changes in the breast resulting from previous estrogenic stimulation are combined with the effects of a final period of intense estrogenic stimulation, conditions found in the human breast with carcinoma are most closely approximated. These experiments, the author points out, suggest that human mammary cancer may result from one or from a combination of the following factors: (1) abnormally intense estrogenic stimulation during the adolescent period of mammary development or during a previous pregnancy, (2) ovarian dysfunction in cyclic women resulting in relative hyperestrogenism over a period of years prior to the menopause (most of these have the characteristic changes of adenosis or of Schimmelbusch's disease) and (3) intense or continuous estrogenic stimulation at the time of the menopause (superimposed on factors 1 and 2).

Estrogenic stimulation influences also other endocrine glands. The most striking changes were found in the pituitary gland and in the thymus. Hypophysectomy prevents the physiologic effects of estrogen on the mammary gland, and cancer does not develop. Geschickter and Byrnes point out the importance of species differences. They have not been able to produce breast carcinoma in monkeys and in rabbits. They found that administration of testosterone or progesterone simultaneously with or in sequence to estrogenic stimulation does not prevent the appearance of mammary cancer. The growth of estrogenic cancer, however, is inhibited by anterior pituitary extract. They conclude that the most important observation with respect to the estrogens is the production of mammary cancer by prolonged administration. This toxicologic property, they warn, must be considered when compounds of high potency with prolonged activity are administered.

THE NATIONAL LEPROSARIUM

The origin of leprosy, which for centuries has been one of the most dreaded diseases, is lost in antiquity. Leprophobia is unjustified. While the disease is infectious it is not as contagious as tuberculosis, and the danger of exposure to leprosy is not great. A recent report by Faget [1] of the United States Public Health Service provides arresting information on leprosy as it exists in this country.

Constructive measures were first taken against leprosy in Louisiana in 1894, when a home on an old plantation was provided for 8 patients. The old slave shacks which were used to house the first patients were eventually abandoned and replaced with new buildings. In 1920 the federal government, cognizant of the occurrence of leprosy in many of the states of the Union and recognizing the need for a home where all persons suffering with the disease might be cared for and treated, negotiated to take over the Louisiana Leper Home. At present the National Leprosarium (U. S. Marine Hospital) at Carville, La., is one of the most modern in the world. It is situated on a reservation of 350 acres and is actually a self-sustaining community. The presence of churches, a dairy, a power plant, a water treatment plant, a sewerage system, garbage disposal facilities, a fire department and laundries makes it indeed comparable to a small town. Any person afflicted with leprosy may present himself for care. Also admitted are lepers consigned to the hospital by the proper health authorities and persons apprehended under the authority of the United States quarantine acts. The majority of the patients are ambulatory and live in two story concrete buildings.

Occupational therapy has been found helpful; it has a good moral effect and prevents the brooding of a patient on his malady. Ample recreational facilities are also available. Many of the afflicted are employed by the government on a small salary basis, but the government provides all patients with food and clothing, together with books and sports equipment. The medical staff of the Leprosarium specializes in leprosy, and the medical library is adequate in this field. Besides general institutional care the patients are given any special treatment which may be thought beneficial to their condition. Practically all the patients take some form of treatment, and chaulmoogra oil products are extensively used.

Food plays a direct part in the fight against the disease. New experimental treatments have been investigated with selected patients, and the sulfonamides have proved effective in clearing up secondary infections and in healing chronic disabling ulcers. Whether or not some of the newer sulfonamide derivatives have any therapeutic action on leprosy, however, remains to be demonstrated. Large doses of thiamine have been found efficacious in relieving painful leprous neuritis. In the laboratories of the Leprosarium research bearing on leprosy is carried out, and the institution also serves as a postgraduate instructional center for leprosy.

Since 1894 the Carville Hospital has cared for 1,371 patients, of whom 593 died at the hospital, 53 have been deported to foreign countries and 309 have been discharged with the disease arrested. Fifty-eight of the latter, however, have relapsed and returned to the hospital for further treatment. Of the total admissions, about 400 were foreign born. Among the states from which patients were admitted Louisiana leads with 576, California follows with 194, Texas is third with 192 and New York is fourth with 118. Patients have been received from forty states.

1. Faget, G. H.: The Story of the National Leprosarium (U. S. Marine Hospital), Carville, Louisiana, Pub. Health Rep. **57**: 641 (May 1) 1942.

Current Comment

FEDERAL AID FOR MEDICAL STUDENTS PURSUING ACCELERATED COURSES

The Congress has completed action on the proposal to provide federal financial aid to students pursuing accelerated courses in certain technical and professional fields considered essential in the national defense. The sum of $5,000,000 has been made available for this purpose. Assistance will be given to students, in such numbers as the chairman of the War Manpower Commission shall determine, to participate in accelerated programs in degree-granting colleges and universities in engineering, physics, chemistry, medicine (including veterinary), dentistry and pharmacy whose technical or professional education can be completed within two years. Loans will be made to students who attain and continue to maintain satisfactory standards of scholarship, who are in need of assistance, who agree in writing to participate, until otherwise directed, in the accelerated programs of study and who agree in writing to engage for the duration of the wars in which the United States is now engaged in such employment or service as may be assigned by officers or agencies designated by the chairman of the War Manpower Commission. Such loans are to be made by colleges or universities or public or college connected agencies from funds paid to them out of the federal appropriation. Loans will be made in amounts not exceeding tuition and fees plus $25 a month and not exceeding a total of $500 to any one student during any twelve month period. Indebtedness of students who, before completing their courses, are ordered into military service during the present wars under the Selective Training and Service Act of 1940, or who suffer total and permanent disability or death, will be canceled. The loan program will be administered in accordance with regulations promulgated by the Commissioner of Education with the approval of the chairman of the War Manpower Commission.

NEW STANDARD NOMENCLATURE OF DISEASE AND OPERATIONS

In 1937 the headquarters of the American Medical Association undertook to edit and publish the Standard Classified Nomenclature of Disease. The third edition of this book is now available combined with a new Standard Nomenclature of Operations. Dr. Edwin P. Jordan, one of the assistant editors of THE JOURNAL, has supervised the project. This edition of the Standard Nomenclature of Disease has been extensively revised under the direction of qualified specialists. Although the arrangement has not been changed substantially, about thirty-five hundred additions, deletions and corrections have been made in individual diagnostic entries, necessitating a new index designed to facilitate identification of preferred diagnostic terms. A special table of eponymic diseases has been added. More changes have been necessary in the fields in which research during the last few years has been most extensive, for example endocrinology and the vitamin deficiency diseases. The new Standard Nomenclature of Operations, which has been added under the same binding, has been prepared by a special committee consisting of Drs. H. Perry Jenkins, T. R. Ponton and Bronson S. Ray, each of whom had compiled previous operative terminologies. The arrangement is similar to that followed by the Standard Nomenclature of Disease: it utilizes the same topographic designations and employs a simple and logical method of expressing the operative procedures. It is liberally indexed. Since the maintenance of hospital and institutional records is difficult because of the war, the adoption of this modern method of classification will help to stabilize this work. The desirability of introducing this up to date system in all government hospitals is especially apparent. No doubt the assistance of qualified and experienced medical record librarians could be obtained by government agencies to facilitate such action.

SAFEGUARDING NARCOTIC DRUGS FROM THEFT

As a result of the foresight of the Federal Bureau of Narcotics in building up adequate reserves, immediate danger of a shortage in narcotic drugs does not threaten as far as legitimate use is concerned. The supply on hand, however, must be protected and conserved. None of the raw materials from which such drugs are produced are grown in the United States; sources of supply from overseas have either been cut off altogether by the war or are becoming more and more unproductive. The supply of smuggled narcotic drugs available to the illicit traffic has been practically eliminated by a gradual improvement in law enforcement. The trafficker who formerly distributed smuggled narcotics must now look elsewhere for his supply, and he is with accelerating frequency turning to the medicinal stocks. Legitimate holders of such stocks are being robbed and otherwise victimized to such an extent as to cause serious concern. Frequently thefts of narcotic drugs give evidence of having been perpetrated by gangs of professional thieves. For years the Bureau of Narcotics has been urging that stocks of such drugs be adequately protected from theft. Now it reemphasizes its previous appeals in this language:

> The theft hazards to which such drugs are now subjected by reason of the marked shortage of smuggled drugs in the illicit traffic, the necessity for their conservation as critical and strategical war materials and the uncertainties of foreign shipping which may interfere with the procuring of replacement supplies, all combine to make their proper safeguarding a matter of extreme importance. We have some reserve but not enough to be wasteful or careless. Every theft of narcotics, which must be replaced from this reserve, reduces by that amount the quantity of drugs available, not only for civilian medical needs, but also for the relief of pain in our armed forces and those of our allies.

Physicians, hospitals, druggists and other legitimate possessors of these drugs can minimize the danger by redoubling safeguards. Physicians should provide secure storage for their office supply of narcotics; they should lock their automobiles securely when narcotics are temporarily left in them. Thefts should be promptly reported to the narcotic district supervisor having jurisdiction.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

QUESTIONS AND ANSWERS ON PROCUREMENT AND ASSIGNMENT SERVICE

Q. Will the Procurement and Assignment Service protect a doctor from the draft?

A. The Procurement and Assignment Service was not established to protect anybody from anything. Its function is to enroll physicians, dentists and veterinarians and assign them to the positions in which their services will be of greatest value to the nation in the war emergency. This function obviously parallels the responsibilities of Selective Service, but the officials of the Selective Service have welcomed the cooperation of the Procurement and Assignment Service in dealing with these professional groups. To implement this cooperation, General Hershey issued a memorandum to Selective Service boards asking them to secure through the state director of Selective Service the recommendations of the Procurement and Assignment Service wherever they are considering the classification of a physician, dentist or veterinarian. Hence, if a doctor has enrolled with the Procurement and Assignment Service, his Selective Service board will be so advised and a recommendation for his deferment, until his services are needed in a professional capacity, will be made.

Q. Will men under 45 be called before men over that age will be considered?

A. The Army will consider applications for commission from men up to the age of 55 and the Navy up to the age of 50. The greatest need, however, is for younger men. Hence, the first call by the Procurement and Assignment Service will be for men under 36 and then men between 36 and 45 years of age.

Q. If a physician is physically disqualified for a commission, is he still subject to the draft?

A. The physical requirements for officers are higher than they are for enlisted men, but under the modified requirements for "limited service" in the Medical Corps most, if not all, physicians who meet the requirements for enlisted men will be eligible for commissions. If not, the physician concerned should consult the chairman of his State Procurement and Assignment Service Committee relative to service in a war industry or some other essential civilian service.

Q. How much consideration will be given to the choices of service listed on the enrolment form of the Procurement and Assignment Service?

A. So far as possible, the choices of service listed on the enrolment form will be given consideration. However, if the needs of the armed forces demand it, it may at times be necessary to ignore personal preferences.

Q. Do physicians in shipbuilding and airplane factories receive any special consideration?

A. Essential medical service in vital war industries must be maintained. To do this, certain medical positions must be declared essential. Individual physicians who are of military age and physically fit for service should be declared essential in such positions only if it is impossible to replace them or have the necessary service provided by men not otherwise available for service with the armed forces.

Q. In determining the number of physicians needed to care for the civilian population, are rural communities considered on the same basis as larger cities?

A. A special committee is now working on the determination of minimum quotas of physicians for civilian medical care. In their studies consideration will be given to the density of the population, the ease of transportation, the availability of hospital service and other factors.

Q. Will doctors in draft age be called by the Procurement and Assignment Service on the basis of availability regardless of their Selective Service numbers?

A. In asking physicians to accept assignments, the Procurement and Assignment Service will select names by chance from alphabetical lists of the names of the physicians in the age group desired. Officials of national headquarters of Selective Service report that it is impossible to use Selective Service order numbers for this purpose. The first lists to be given assignments with the Army or Navy will be those who have indicated these services as their first choice.

Q. How many people in a community can be served by one man?

A. Studies are in progress by a special committee of the Procurement and Assignment Service to serve as a basis for the determination of minimum quotas of medical service which should be retained for the civilian population. Until these studies are completed it has been agreed that, for general medical service, approximately one "effective" doctor to fifteen hundred population is the minimum coverage that should be provided. Limited specialists are not included in this basic figure.

Q. Is it true that unless an intern for 1942-1943 has a commission in the Army or Navy he may be withdrawn at any time?

A. National headquarters of Selective Service has advised local boards that medical students and interns who wish deferment and are physically enabled should apply for the commissions which are available to them. In view of this, interns who are physically fit and do not hold commissions may be subject to induction.

Q. What percentage of a man's time devoted to medical teaching is necessary to make him essential?

A. The determination as to whether an individual is an essential teacher cannot be put on a percentage basis. Some teachers on a full time basis cannot justifiably be considered essential, while others giving a much smaller proportion of time might be essential. In general, however, very special circumstances should exist to justify designating a physician of military age as an essential teacher unless he is devoting at least half time to teaching.

Q. Is the local draft board or the Procurement and Assignment Service to determine whether a doctor is necessary in his local community?

A. The legal responsibility for deciding whether any individual who is registered with Selective Service shall be given deferment rests with his local Selective Service board. However, General Hershey has directed local boards, when considering the classification of physicians, dentists or veterinarians,

to secure the advice of the state committee of the Procurement and Assignment Service as to whether the individual under consideration is "essential" for the care of the civilian population in his community or whether he can be considered available for service elsewhere.

Q. How many physicians are there in the United States under 35 years of age? Under 45?

A. Of the 152,923 physicians in private practice in the continental United States,

37,753, or 24.7 per cent, are under 35 years of age, 35,240, or 23.0 per cent, are 35-44 years of age, 26,573, or 17.4 per cent, are 45-54 years of age, 26,076, or 17.1 per cent, are 55-64 years of age, 11,915, or 7.8 per cent, are 65-69 years of age, 8,112, or 5.3 per cent, are 70-74 years of age and 7,233, or 4.7 per cent, are 75 and over.

Q. Do you expect the needs of the armed forces to be filled by voluntary enlistment? If not, what is to be the procedure?

A. It is the firm conviction of the directing board of the Procurement and Assignment Service that the physicians of this country will willingly accept the assignments requested of them in meeting the medical needs of the nation during the war emergency. The executive order of the President establishing the Procurement and Assignment Service states that Mr. McNutt may "instruct the Agency to draft legislation, which may be necessary to submit to the Congress providing for the involuntary recruitment of medical, dental and veterinary personnel, in the event the exigencies of the national emergency appear to require it." The directing board, however, has given no thought to such legislation because it is convinced that it will not be necessary.

Q. In what grade may a doctor expect to receive a commission?

A. The policy which is being followed by the Office of the Surgeon General of the Army in making recommendations for commission is as follows:

1. All appointments must be limited to the quotas provided for medical personnel of various ranks in relation to the total over-all size of the Army.

2. All appointments in tactical units will be at minimum grades of first lieutenant, as no experience in civilian life qualifies a doctor for service in this capacity.

3. Appointments above the minimum grade will be made only on the basis of vacancies, special qualifications and there being no one qualified to fill the position by a promotion.

First Lieutenant.—All appointments under 37 will be in this rank except for individuals who possess special qualifications for a particular vacancy which exists. Certification by specialty board will be considered evidence of such special qualifications. Applicants who previously held appointments in the Medical Reserve Corps in the rank of captain may apply for reappointment at the same rank.

Captain.—Initial appointees at the age of 37-45 may apply for this rank. Likewise, men under 37 with special qualifications.

Major.—Age 37-55. Eligible applicants must have the special qualifications required for appointments as captain and in addition experience and training which qualifies the individual as chief of a service or section, or executive of a large hospital.

Lieutenant Colonel and Colonel.—New appointments will be made in these ranks only for special assignments which cannot be filled by promotion.

Signed for the Board,
PROCUREMENT AND ASSIGNMENT SERVICE,
FRANK H. LAHEY, M.D., Chairman.

HOW TO PROTECT ONESELF AGAINST GAS

This operations letter of June 9 of the Office of Civilian Defense, Washington, D. C., James M. Landis, director, deals with personal protection against gas. If people will remember a few simple facts, they will have no unreasonable fear of this agent.

War gases stay close to the ground, for they are heavier than air. To get out of a gassed area, simply walk against the wind or go upstairs.

Gas is irritating to the eyes, nose, lungs or the skin, but it is usually harmless if one does not become panicky but promptly leaves the gas area and cleanses oneself. A soldier must put on a mask where it is necessary to remain in the contaminated area, but a civilian can go up on the second or third floor and ignore it if the windows are kept closed.

If the gas should get on the skin, one can prevent it from doing much harm by sponging it off as quickly as possible with a piece of clothing, such as a handkerchief, and applying some neutralizing substance, followed by a thorough bath, preferably a shower, with common laundry soap and water.

If one is indoors, stay there with doors and windows closed, and go to the second or third story. Stay out of basements. Turn off the air conditioning, and stop up fireplaces and any other large openings.

Some gases are spread as oily droplets which blister and burn the skin and eyes. If one is outside when gas is used, do not look up. Use clothing or a handkerchief to blot drops of liquid from the skin and throw the contaminated cloth away. Do not rub, as rubbing will spread the liquid. Then go to the nearest place where one can wash immediately with soap and water and cleanse oneself in the following manner:

Remove all outer clothing outside the house, since gas can be transmitted to others from contaminated clothing. Put it preferably in a covered garbage pail.

Apply one of the following effective household remedies to the part of the skin that has been contaminated; chlorox or similar household bleach (for mustard); hydrogen peroxide (for lewisite); paste or solution of baking soda if no peroxide or bleach is available. If one does not know the gas, use both peroxide and bleach. Keep bleach and peroxide out of the eyes. Do not waste time looking for these remedies; bathe immediately if they are not at hand.

After entering the house, wash the bleach or peroxide from the hands with laundry soap and water and then wash the face. Remove the underclothing, place it in a covered garbage pail and enter the bathroom.

Irrigate the eyes with large amounts of lukewarm 2 per cent solution of baking soda (1 tablespoon to a quart of water) or else with plain water. Use an ordinary irrigating douche bag or an eye irrigator. If one does not have these, let plain warm water pour into the eyes from the shower, washing them thoroughly. Do not press or rub the eyes.

Lastly, take a shower, using laundry soap and hot water.

If the nose and throat feel irritated, wash them out also with baking soda solution.

If the chest feels heavy and oppressed, if one has any trouble breathing or if cigaret smoke becomes distasteful, lie down and stay perfectly still until a doctor comes.

If blisters develop, do not break them, and call a doctor.

Remember:

Soldiers require gas masks because they must remain in the contaminated area. Civilians can get out of the gassed area or get above the level of the gas, where they do not need gas masks or protective clothing.

Injured persons who are gassed require decontamination before they can be admitted to hospitals. All other civilians can best prevent any serious injury by promptly helping themselves in the manner outlined, using a kitchen or bathroom, laundry soap and water, and a few materials found in every household.

HANDBOOK FOR PHYSICIANS ON INDUSTRIAL HEALTH AND MEDICINE IN WAR INDUSTRIES

On the recommendation of the Committee on Industrial Medicine of the National Research Council, the Division of Industrial Hygiene, National Institute of Health, is preparing a manual on "Industrial Hygiene and Medical Service in the War Industries." The publication is intended for wide distribution among industrial physicians and the general medical profession. The recommendation of the National Research Council was endorsed by the Health and Medical Committee and has been approved by Federal Security Administrator Paul V. McNutt and Surgeon General Thomas Parran of the U. S. Public Health Service.

The resolution submitted by the Committee on Industrial Medicine, Division of Medical Sciences, National Research Council, follows:

The change over of industry to the manufacture of war materials is resulting in modifications of occupational health hazards, the introduction of new occupational disease exposures and certain variations in the industrial medical procedures. The following are illustrative:

1. There is increased usage of cutting oils, compounds and chemicals, many of which are capable of causing the industrial dermatoses.

2. Grinding operations have multiplied, and these entail exposures to aluminum oxide, silicon carbide and other grinding materials. While the dusts from grinding operations have not been regarded as harmful to health, disabilities occurring in workers so exposed are coming to be regarded as compensable.

3. Shot blast operations are being replaced by sand blasting, and new installations of this nature are consistently using sand.

4. In an effort to speed up pickling operations, there is a tendency to increase the concentrations of acids in the pickling tanks, with consequently more contamination of the air with fine droplets of the acids.

5. Solvents are being more widely used, and certain of the newer ones are purported to be nontoxic. As most of them are in the chlorinated hydrocarbon group of chemicals, they can be assumed to be more or less toxic.

6. Paint spraying operations are being modified, requiring radical readjustments in ventilation procedures.

7. There is a tendency toward longer working hours and, consequently, longer hours of exposure to harmful materials and shorter periods of recuperation.

8. It is becoming more and more necessary to employ women, older men and young men who are not eligible for military service, many of whom require selective placement, which is a function of the plant medical service.

9. It is necessary that the medical service in the war industries be integrated with the emergency medical service of civilian defense. Details necessary to this objective are not understood by the industrial physicians as yet.

In order that industrial physicians and the general medical profession, when called on by industry, may be more adequately prepared to protect the health of the workers in the war industries, be it therefore

Resolved, That the Committee on Industrial Medicine of the National Research Council recommends the preparation of a brochure or special article on "Industrial Hygiene and Medical Service in the War Industries" for wide distribution among the medical profession, and that this brochure be prepared by the Division of Industrial Hygiene, National Institute of Health of the U. S. Public Health Service.

The brochure will be prepared by the full time and consultant professional staff of the Division of Industrial Hygiene under the general editorship of Dr. William M. Gafafer, chief of the statistical unit of the division. Important subjects for discussion include toxicity and potential dangers of organic and inorganic substances in the war industries, occupational skin diseases in war industries, engineering control, industrial medical service, nursing in industry, dental services, fatigue, women in industry, medical control of respiratory diseases, nutrition in war industries, available governmental industrial hygiene services and integration of plant and community emergency medical services. The brochure will probably cover about three hundred pages.

ILLINOIS CONFERENCE ON NUTRITION FOR DEFENSE

The Illinois Nutrition Committee and the Nutrition Division of the Illinois Defense Council sponsored a conference on nutrition, which was held at Springfield June 19-20. Lydia J. Roberts, Ph.D., chairman of the Illinois Nutrition Committee and of the Department of Home Economics of the University of Chicago, presided at the opening session and gave an address entitled "How Is Illinois Equipped and Organized to Meet Its Nutrition Problems?" Dr. Roberts is a member of the Council on Foods and Nutrition of the American Medical Association.

Dr. Clifford Grulee, head of the pediatrics department of Rush Medical College, and Dr. M. H. Kronenberg of the Illinois Department of Public Health, among others, took part in a symposium on "What Is Our Nutrition Problem in Illinois?"

Helen Walsh, regional nutritionist of the Office of Civilian Defense, Health and Welfare Services, Washington, D. C., discussed "Highlights from the National Nutrition Program." Dr. Frank G. Boudreau, director of the Milbank Memorial Fund and chairman of the Food and Nutrition Board of the National Research Council, discussed "Nutritional Problems in Wartime, with Special Consideration of the Nutritional Problems of Industrial Workers."

Symposiums were participated in by numerous authorities in the fields of nutrition and home economics, the general subject being "Ways and Means of Carrying on Nutrition Activities at the State and Local Levels."

"Nutrition movies" were shown. A collection of materials helpful in developing nutritional programs was exhibited.

SPECIAL CLASS FOR STUDENT NURSES

A special class of nursing students organized in the schools of nursing of the Department of Hospitals of New York City, comprising one hundred prenursing students of the department of hospitals, was admitted to Brooklyn College on June 29. These students will have two months' preclinical science work at the college and then be admitted to Bellevue, Harlem, Kings County and Metropolitan hospitals in September to continue the nursing program. This arrangement is made possible by a grant under the federal security agency appropriation act of 1942, which provides funds for the expansion of the approved schools of nursing throughout the country. Brooklyn College has cooperated by assigning teachers and laboratories for the teaching of these students during the summer months. Although the basic course in nursing is three years, the opportunity to serve begins almost at once. As the student nurse learns to care for the patients, this helps relieve the time of graduate nurses for duties requiring greater experience. Hundreds of the most experienced graduate nurses are being called to serve with the military forces, thus causing a shortage of nurses for civilian work.

AMBULANCES PRESENTED TO BROOKLYN CHAPTER OF THE RED CROSS

At a ceremony attended by thousands of persons at the Brooklyn Borough Hall, June 19, several ambulances and four mobile canteens were presented to the Brooklyn chapter of the American Red Cross. The ambulances were presented by the Kings County Medical Society, the Brooklyn Boys' High School, Abraham Lincoln High School, Midwood High School, Franklin K. Lane High School, Samuel J. Tilden High School and the Brooklyn Heights Association. The mobile canteens were the gifts of the Masons of Greater New York, the Bush Terminal Merchants' Association, the Loyal League and the Brooklyn Girls' High School. The Borough President, John Cashmore, the acting secretary of the department of health, Dr. Frank A. Calderone, and others gave addresses. Eighteen sailors of the U. S. S. *Marblehead,* which recently returned to the United States after having been disabled in the battle of the Java Sea, received an ovation.

MEDICAL AND SAFETY DIRECTORS' CONFERENCE

Physicians and engineers in ordnance plants will meet in a series of special conferences to discuss and clarify industrial hygiene problems of common concern in government establishments. The first conference is scheduled for July 17-18 in St. Louis and will be attended by personnel from plants within a 300 mile radius of that city. The conferences are sponsored by the Office of the Chief of Ordnance, War Department, in cooperation with the Division of Industrial Hygiene, National Institute of Health, and the Surgeon General's Office of the Army. Three papers will be presented at each of six sessions, allowing time for full discussion. The speakers will include representatives of the aforementioned agencies and of the Office of the Surgeon General, War Department, the E. I. du Pont de Nemours Company, the General Motors Corporation and the U. S. Bureau of Mines, Department of the Interior.

OFFICERS OF THE ARMY

An officer of the Army of the United States must be at the time of appointment a citizen of the United States or the Philippine Islands, or an alien of a co-belligerent or friendly country who otherwise possesses the same qualifications as a citizen of the United States, and between the ages of 18 and 60 years, according to War Department Circular No. 147, section 6a, dated May 16, 1942.

ORGANIZATION SECTION

OFFICIAL NOTES

ABSTRACTS OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD IN ATLANTIC CITY, N. J., JUNE 7-11, 1942

A full day meeting of the Board was held on Sunday, June 7, and meetings of shorter duration were held on other days during the week of the annual session.

EMPLOYMENT OF INVESTMENT COUNSEL

The Board approved the employment by the Finance Committee of investment counsel to advise regarding the investment of the funds of the Association.

OMISSIONS FROM AMERICAN MEDICAL DIRECTORY

It was decided that, beginning with the edition now in press, the American Medical Directory shall include only the names of those who are graduates of medical schools with the degree of Doctor of Medicine or its equivalent and of those who are holders of license under the provision of years of practice of medicine or of those not otherwise specified whose names have appeared in previous editions of the Directory, and that the subtitle of the Directory so indicate.

WAR MEDICINE

Authorization was given for the reconstitution of the Editorial Board of *War Medicine*. Beginning with the July issue, the Board will be constituted as follows: Drs. Morris Fishbein, Chief Editor; Eugene F. Du Bois; Perrin H. Long; W. W. Palmer; Clarence D. Selby; O. H. Perry Pepper; Winfred Overholser; Walter B. Cannon; Frederick A. Coller, and Milton C. Winternitz, in cooperation with C. C. Hillman, Brigadier General, U. S. Army Medical Corps; Charles S. Stephenson, Captain, U. S. Navy Medical Corps, and R. R. Spencer, U. S. Public Health Service. The statement that the periodical is published under the auspices of the American Medical Association and the Committee on Information, Division of Medical Sciences, National Research Council, with the names of the members of that committee, will be continued.

APPOINTMENTS

Dr. C. S. Keefer, Boston, was elected to succeed Dr. Soma Weiss on the Council on Pharmacy and Chemistry.

The Board approved the appointment of Dr. Paul A. O'Leary to represent the American Medical Association at the meeting of the Canadian Medical Association at Jasper National Park, June 15 to 19, 1942.

MEDICOPHARMACEUTICAL RELATIONSHIPS

Authorization was given for continuation of negotiations between the Council on Pharmacy and Chemistry and the American Pharmaceutical Association, with a view to holding another conference on medicopharmaceutical relationships when the time appears propitious.

ASSOCIATION BROADCAST

Continuation in the fall of the Association's broadcasting program, under the title Doctors at War, was authorized by the Board, provided conditions are as favorable at that time as they have been during the season just completed.

The Board approved a resolution expressing appreciation to the National Broadcasting Company, the Columbia Broadcasting System, the Blue Network and numerous individual radio stations which have from time to time during the past year participated with the American Medical Association or, on request of the Association, with related medical and health agencies in health education broadcasting, and referred the resolution to the House of Delegates.

SERVICES OF COMMITTEE ON AMERICAN HEALTH RESORTS OFFERED TO GOVERNMENT

A resolution received from the Committee on American Health Resorts offering its services, as a whole or as individual, to the Surgeon General of the Army, the Navy and the Public Health Service, to the Health and Medical Welfare Division of the Federal Security Agency and to the Director of the Veterans' Bureau to assist in every possible way in effecting a plan whereby the facilities of the American Health Resorts of the United States can be utilized for the care and treatment of properly selected patients who would benefit from such service was approved by the Board.

HYGEIA

Approval was given for certain changes in the format for *Hygeia*, which necessitate the employment of a new art editor.

NATIONWIDE EXCHANGE OF INFORMATION ON PROGRESS IN MEDICAL SCIENCE

Authorization was given to Dr. Morris Fishbein, Editor, to prepare a biweekly letter on the advancement of medical science, which will be sent, through the Department of State, to the allied nations with a view to keeping them informed of the progress being made in the United States.

APPOINTMENT OF OFFICERS AND COMMITTEES

Dr. Roger I. Lee was elected Chairman of the Board for the ensuing year; Dr. R. L. Sensenich, Vice Chairman, and Dr. E. E. Irons, Secretary.

Drs. James R. Bloss (Chairman), R. L. Sensenich and E. E. Irons were elected to act as the Executive Committee and the Finance Committee.

MISCELLANEOUS

Numerous other matters were considered by the Board at its several meetings, some of which will be reported on later.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 7181 has been approved by the President, making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies for the fiscal year ending June 30, 1943. The bill includes an appropriation of $5,000,000 to assist students, in such numbers as the chairman of the War Manpower Commission shall determine, who participate in accelerated programs in degree granting colleges and universities in engineering, physics, chemistry, medicine (including veterinary), dentistry and pharmacy and whose technical or professional education can be completed within two years. This loan program will be administered through the Office of Education. H. R. 7242 has passed the House, providing that in time of war or national emergency any officer of the Medical Administrative Corps, commissioned in the Army of the United States or any component thereof, may be appointed by the President to higher temporary grade, not above the grade of colonel, without vacating any appointment held by him at the time of such temporary appointment. The House Committee on the Judiciary has ordered favorably reported the Tolan bill, H. R. 1052, to authorize chiropractors to treat the beneficiaries of the United States Employees Compensation Act.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Election.—Dr. Otto E. Utzinger, Ray, was unanimously chosen president-elect of the Arizona State Medical Association at its annual meeting in Prescott, May 25-29. Dr. E. Payne Palmer, Phoenix, was installed as president. Dr. Virgil G. Presson, Tucson, was chosen vice president, Dr. Clarence E. Yount, Prescott, reelected treasurer and Dr. William Warner Watkins, Phoenix, reelected secretary. The 1943 meeting will be in Tucson.

Encephalitis Survey in Pinal County.—A field investigation of encephalitis is being conducted in Pinal County by Dr. William McD. Hammon of the George Williams Hooper Foundation, University of California, San Francisco, and Dr. Gordon Meiklejohn and Mr. Bernard Brookman, entomologist, both of the University of California at Berkeley. The state department of health and the Agricultural Welfare Association are cooperating with the hospital in Casa Grande, where the field headquarters has been established. According to *Public Health News* there were at least 18 cases of human encephalitis in Pinal County last year. The St. Louis type predominated. Dr. Hammon and associates have been studying outbreaks of encephalitis in man and horses in some western states for the past two years and found what appears to be a vast reservoir for infection of mosquitoes in barnyard animals. In the Arizona study material taken from mosquitoes and other insects, domestic animals and some wild animals will be sent to the Hooper Foundation laboratories in San Francisco to determine the presence of virus.

ARKANSAS

District Meetings.—The Ninth Councilor District Medical Society met at the Hotel Seville, Harrison, June 3. The speakers included Drs. Rufus B. Robins, Camden, "Human Element in Medicine"; Silas C. Fulmer, Little Rock, "Clinical Syndrome in Coronary Diseases"; Joseph F. Shuffield, Little Rock, "Fractures of the Ankle"; Grady W. Reagan, Little Rock, "Diagnosis and Treatment of Urinary Calculus," and William R. Brooksher, Fort Smith, secretary of the state medical society.——The Arkansas State Pediatric Society was addressed recently in Hot Springs National Park by Drs. Gilbert J. Levy, Memphis, on "Use of Sulfonamides in the Treatment of Gonorrheal Conjunctivitis"; Paul L. Mahoney and Alan G. Cazort, Little Rock, "The Relationship Between the Pediatrician, the Otolaryngologist and the Allergist" and William V. Newman, Little Rock, "The Orthopedic Treatment of Poliomyelitis."——The Fourth Councilor District Medical Society meeting in McGehee, May 19, was addressed, among others, by Dr. Rufus B. Robins, Camden, on "The Acute Conditions of the Abdomen."

CALIFORNIA

Anatomists Honored.—Charles H. Danforth, Ph.D., professor of anatomy at Stanford University, has been elected president of the Western Society of Naturalists, and Frank M. MacFarland, Ph.D., emeritus professor of histology at Stanford, has become the president of the California Academy of Sciences.

Dr. Magan Retires as President of Medical College.—Dr. Percy T. Magan, since 1928 president and professor of medical ethics at the College of Medical Evangelists, Los Angeles, was guest of honor at a reception in Los Angeles, May 13, held by students, alumni and friends to mark his retirement as president of the college. Dr. Magan, who graduated at the University of Tennessee College of Medicine, Memphis, in 1914, was dean and professor of medicine at the College of Medical Evangelists from 1913 to 1928. He is a former vice president of the California Medical Association. Dr. Walter E. Macpherson, Los Angeles, professor of internal medicine and physiology at the College of Medical Evangelists, has been named president to succeed Dr. Magan.

FLORIDA

Personal.—Dr. Rolla J. Shale, Ontonagon, director of the Ontonagon-Baraga district health department in the state of Michigan, has been appointed director of the Hillsborough County health unit with headquarters in Tampa.

Special Society Election.—Dr. Shaler A. Richardson, Jacksonville, was chosen president of the Florida Society of Ophthalmology and Otolaryngology at its recent annual meeting in Hollywood. Other officers are Drs. Robert E. Repass, Miami Beach, vice president, and Carl E. Dunaway, Miami, secretary.

Annual Tuberculosis Conference.—The Florida Tuberculosis and Health Association held its annual tuberculosis conference in Tampa, May 18-19. Among the speakers were Dr. Esmond R. Long, Philadelphia; Dr. Alexandre Bruno, Paris, France, former director of the Rockefeller Foundation Commission in France; Dr. Warren W. Quillian, Coral Gables, and Mr. Frank Kiernan, director of the New York City Tuberculosis and Health Association.

IDAHO

Personal.—Dr. Paul R. Ensign, Boise, has been named director of the health unit in Boise, succeeding Dr. Gustavus D. Bock, who resigned to join the U. S. Naval Medical Corps.

Society News.—The Pocatello Medical Society was addressed recently by Dr. Paul M. Ellis, Wallace, president of the state medical association.——At a meeting of the South Side Medical Society on May 13 in Twin Falls the speakers were Drs. Fern M. Cole, Caldwell, on "Procurement and Supply"; James L. S. Stewart, Boise, "Gastric Surgery," and Sydney E. Sinclair, San Francisco, who is touring the state under the auspices of the state health department.

ILLINOIS

Election of Bacteriologists.—Dr. Josiah J. Moore, Chicago, was elected president of the Society of Illinois Bacteriologists at its spring meeting on May 8 in Chicago and Dr. Henry Close Hesseltine, Chicago, vice president. Mrs. Harry B. Harding, Chicago, was reelected secretary-treasurer. The next meeting will be held in the fall of 1942.

New Deputy Health Commissioner.—Dr. Hugo V. Hullerman, Springfield, chief of the division of local health administration, state department of public health, has resigned to become deputy commissioner of health and director of maternal child health of the Peoria State Department of Health, effective July 1. He succeeds Dr. John A. Carswell, formerly of Milwaukee, who has held the position since February 1 and is resigning on account of ill health. Dr. Carswell has accepted a position as health officer of Santa Barbara County in California. Dr. Hullerman has held his position in the state health department for the past three years.

LOUISIANA

Special Society Elections.—Dr. Earl Conway Smith, New Orleans, was elected president of the Louisiana Gynecological and Obstetrical Society at its recent annual meeting; Dr. Clifford R. Mays, Shreveport, vice president, and Dr. Eugene H. Countiss, New Orleans, secretary.——Dr. Chester A. Stewart, New Orleans, was named president-elect of the Louisiana State Pediatric Society at its recent annual meeting, and Dr. Stanley George Wolfe, Shreveport, was installed as president. Dr. William C. Rivenbark, New Orleans, is secretary.——New officers of the Association of Louisiana Pathologists, chosen at its recent annual session, are Drs. Maurice J. Couret, president, Albert E. Casey, vice president, and Samuel H. Colvin Jr., secretary-treasurer; all are of New Orleans.——The Louisiana Coroners' Association recently elected the following officers: Drs. Charles J. Barker, Thibodaux, president; Robert F. De Rouen, New Iberia, and Marvin M. Odom, Gretna, vice presidents, and Luther L. Ricks, Independence, secretary-treasurer.

MAINE

Fifty Year Medals Awarded.—The Maine Medical Association presented fifty year medals to the following during its recent annual meeting in Poland Spring:

Dr. James P. Blake, Harrison.
Dr. Edward F. Robinson, Falm'th.
Dr. Owen Smith, Portland.
Dr. Frederick E. Wheet, Westb'k.
Dr. Verdeil O. White, E. Dixfield.
Dr. Luther G. Bunker, Waterville.
Dr. Clayton H. Bayard, Orono.
Dr. Ralph H. Marsh, Guilford.
Dr. Eugene L. Stevens, Belfast.

Society News.—At a recent meeting of the Portland Medical Club, Drs. Elton R. Blaisdell and Langdon T. Thaxter, Portland, spoke on "Acute Low Substernal and High Epigastric Pain (Possible Errors in Differential Diagnosis)."—— The Penobscot County Medical Association held a meeting on April 21 at Bangor. The subject for the evening was "Medical Aspects of War Services."——A joint meeting of the Somerset, Franklin and Kennebec county medical societies, April 23, Waterville, was addressed by Drs. Richard P. Laney, Skowhegan, "Meningococcic Meningitis"; Thomas Dennie Pratt, Brookline, Mass., "Cerebellar Tumor in a Child of Twelve Years"; George L. Pratt, Farmington, "Ulcerative Colitis," and Delmer Allan Craig, Bangor.

MICHIGAN

Medical Coordinator in Wayne County.—Dr. Roland M. Athay, Detroit, was appointed medical coordinator for the Wayne County Department of Social Welfare on May 26. Dr. Athay graduated at Northwestern University Medical School in 1915 and entered the practice of medicine in Detroit in 1919. He has been active in the Wayne County Medical Society.

Practice of Medicine in Total War.—The Michigan State Medical Society will present an institute on the "Practice of Medicine in Total War" during its annual meeting in Grand Rapids in September. The following subjects will be covered: How England Reacted to a War Brought Home, Nutritional Problems in Wartime, Civilian Morale in Time of War, the Modern Treatment of Civilian Injuries Incident to Warfare and the Infectious Disease Problem in Wartime.

Industrial Hygiene Survey.—The bureau of industrial hygiene of the Michigan Department of Health recently completed a study of industrial plants in Hillsdale County to determine industrial growth. In Hillsdale County, which is typical of the state counties which are not predominantly industrial but which are experiencing an increase of industry devoted to war needs, the study showed that plant employment had increased over 60 per cent during the last year at an estimated 2,300 plus. A 25 per cent gain in the number of industries has been recorded during the last three years. Activities of the bureau of industrial hygiene are directed at controlling the environmental influences which affect the physical and mental health of the worker, the placing of workers at tasks for which they are physically equipped, the maintaining of physical and mental fitness of workers after they are placed in jobs and the reducing of the amount of productive time and wages lost because of sickness or accident, whether due to occupational or to nonoccupational causes. A release from the state department of health stated that 65 per cent of Michigan's industrial workers and 63 per cent of the state's industrial plants are located outside Detroit.

MINNESOTA

Lecture on Genetics.—The first lecture under the auspices of the newly organized Charles Fremont Dight Institute for the Promotion of Human Genetics, now in operation on the University of Minnesota campus, Minneapolis, was delivered recently by Dr. Philip Levine, Newark, N. J., on "Serological Differentiations of Human Blood."

Ophthalmologists Elect Officers.—Dr. Louis A. Nelson, St. Paul, was recently elected president of the Minnesota Academy of Ophthalmology and Otolaryngology. Other officers include Drs. Charles Wilbur Rucker, Rochester, and Edward D. Risser, Winona, vice presidents, and William A. Kennedy, St. Paul, secretary-treasurer.

MISSISSIPPI

Dr. Hickerson Goes to Cincinnati.—Dr. William D. Hickerson, Sanatorium, has resigned as supervisor of the field tuberculosis diagnostic unit for the Mississippi State Board of Health, effective June 1, to become superintendent of the Cincinnati Sanatorium, Cincinnati. His wife, Dr. Virginia B. P. Hickerson, a member of the staff of the Mississippi State Tuberculosis Sanatorium, Sanatorium, also resigned to accept a position as resident physician at the Cincinnati Sanatorium.

NEW HAMPSHIRE

Memorial Mayo Lecture at Dartmouth.—The annual W. J. and C. H. Mayo Memorial Lectureship in the field of medicine and surgery has been established at Dartmouth College, Hanover, by Dr. and Mrs. Waltman Walters, Rochester, Minn. Dr. Walters, a Dartmouth graduate of 1917, gave the administration of the lectureship to the Dartmouth Medical School. The memorial was established there as "a stimulating factor in interesting men in medicine and surgery; particularly to call attention to the accomplishments of Drs. W. J. and C. H. Mayo in these fields."

NEW JERSEY

Physician Accused of Altering Fingerprints of Fugitive.—The Newark *News* reported on June 9 that Dr. Leopold W. A. Brandenburg, Union City, was arrested by F. B. I. agents for operating on a fugitive from justice to destroy his fingerprints and conceal his identity. Others arrested in connection with the case, according to the *News*, are Dr. Howard A. Welcher, North Bergen, president of the Union City General Hospital Association; Henry Munick, houseman and chauffeur for Dr. Brandenburg, Union City; Cyrus La Zerdura, Harrington Park, and Robert Everette, Surf City. The arrests were announced simultaneously by J. Edgar Hoover, director of the Federal Bureau of Investigation, Washington, and E. E. Conroy, acting assistant director in Newark. Dr. Brandenburg is charged with misprision (guilty knowledge) of a felony, but Mr. Conroy is said to have announced that he would be prosecuted for the operation, it was reported. Roscoe J. Pitts, Charlotte, N. C., who has a long prison record, was the subject of the operation in which Dr. Brandenburg was alleged to have grafted flesh from Pitts's side on his fingertips. The *News* stated that Dr. Brandenburg was fined in 1933 for illegal sale of narcotics and convicted in 1934 of complicity in a $100,000 mail robbery in North Carolina. That conviction was later reversed. He has been arrested under state law for illegal operations but has never been convicted, the *News* reported.

NEW YORK

Typhoid Carriers Decrease.—In 1941 for the first time since the practice of requiring release cultures for cases of typhoid was initiated by the state department of health, an actual decrease in the number of typhoid carriers was reported as compared with the total for the previous year. According to *Health News* a total of 431 carriers, exclusive of those in state institutions, was under supervision in upstate New York at the close of 1941. Thirty-two new carriers were added to and 33 were removed from the register during the year. Twenty-three were discovered as a result of epidemiologic investigation of sporadic cases of typhoid, 1 by means of release cultures, 1 on the basis of information furnished by the New York City Department of Health, and 5 were discovered accidentally—1 at the time of cholecystectomy, 2 through drainage of the gallbladder, 1 because of drainage of an abscess in the region of the gallbladder and 1 through hospitalization for observation. Two previously discovered carriers, who had been living temporarily out of the state, were added to the register. Of the 35 carriers whose names were removed from the register, 23 died. Five carriers were released from restrictions, 4 following cholecystectomy with subsequent submissions of the required number of negative fecal and duodenal specimens. The remaining 7 carriers were removed because of change of residence to a community outside the jurisdiction of the department.

New York City

Grant for Work on Fluorescein.—The John and Mary R. Markle Foundation has given a grant of $3,400 to New York Medical College, Flower and Fifth Avenue hospitals, for further research in the use of fluorescein as a means of measuring the adequacy of blood supply in various parts of the body and will make possible further research in the speed of circulation in various types of heart disease.

Friday Afternoon Lectures.—"The Care of the Civilian Population in War Time" will be the theme of the fall series of Friday afternoon lectures under the auspices of the Medical Society of the County of Kings. Tentatively, individual topics have been selected as follows: Burns, Shock and Hemorrhage, Emergency Treatment and Transportation of Fractures, Emergency Care of Pregnant Women, Cardiac Emergencies During War Time, Pediatric Emergencies, War Neuroses, War Nutrition, Emergency Therapeutics and Intracranial Emergencies.

Dr. Healy Receives Janeway Medal.—Dr. William P. Healy was presented with the Janeway Medal of the American Radium Society during its annual meeting in Atlantic City, June 8. He had delivered the Janeway Lecture on "The Role of the Gynecologist in the Field of Cancer" and was given the prize for outstanding contributions in the field of radium therapy. Dr. Healy graduated at Johns Hopkins University School of Medicine, Baltimore, in 1900 and is a member of the American Gynecological Society, American College of Radiology and the American Radium Society.

The Care of Children with Heart Disease.—In a report recently issued by the city board of education, the creation of a medical advisory committee to direct the medical supervisory and educational aspects of the care of cardiac children is recommended. The report indicates that existing facilities and accommodations are inadequate. Results were based on a limited study of sixty-eight cardiac classes, supplementary data furnished by forty-four principals of schools having these classes and information on cardiac children in nineteen schools without cardiac classes. The report points out that no evidence has been produced to justify present classes in the city but recommends their continuance until some working program has been developed to afford proper medical supervision of cardiac children. Of an estimated group of 7,000 cardiac children, only about 2,000 are in specially segregated classes. The report recommends that when rheumatic fever is found in a child examinations of siblings of the parents should be made; that daily examinations of cardiac children be made at school to determine whether they are in good health and free from infection of the upper respiratory tract before entering classes, subsequent care to be determined on their condition; that two medical examinations a year be given to these children; that home teachers be provided for those children whose cardiac condition prevents them from attending regular classes; that teachers with acute infections of the upper respiratory tract should not, during the first three days of their illness, come in contact with cardiac children and that a register be kept of all children with rheumatic fever, chorea and rheumatic heart disease.

OHIO

Health Commissioner Joins the Navy.—Dr. John L. Lavan, health commissioner of Toledo, has been granted a leave of absence to accept active duty as commander in the medical corps of the U. S. Navy. Dr. Lavan is stationed along the east coast.

Assistant Professor Goes to Searle & Company.—Walter E. Hanbourger, Ph.D., assistant professor of pharmacology at Western Reserve University School of Medicine, Cleveland, has been appointed pharmacologist for G. D. Searle & Company, Skokie, Ill. Dr. Hanbourger received his degree of doctor of philosophy at Western Reserve in 1931. He served as an instructor in pharmacology and toxicology at Yale University from 1932 to 1936, when he returned to Western Reserve.

Public Health Officers.—Dr. James F. Wilson, Washington C. H., was named president-elect of the Ohio Federation of Public Health Officials at its annual meeting in Columbus, May 20, and Dr. John J. Sutter, Wooster, was installed as president. Dr. Willoughby D. Bishop, Greenville, was reelected secretary-treasurer.——Dr. Henry Kennon Dunham, Cincinnati, president, and all other officers of the Ohio Public Health Association were reelected at the annual meeting of the group on May 21 in Columbus.

PENNSYLVANIA

Third and Twelfth Districts in Joint Meeting.—A joint meeting of the Third and Twelfth councilor districts of the state medical society was held in Sayre on June 24. The program opened with a surgical clinic at the Robert Packer Hospital, Sayre, conducted by Dr. Donald Guthrie, Sayre, and associates. Among the speakers on the program were:

Dr. Paul H. Harmon, Fresno, Calif., Surgical Treatment of Osteoarthritis of Hip Joint.
Dr. Frederic W. Bancroft, New York, Treatment of Acute Dermal Burns.
Dr. Abraham H. Aaron, Buffalo, Important Medical Measures in the Management of Gastrointestinal Diseases.
Dr. William L. Estes, Bethlehem, Present Problems of Procurement and Assignment.
Major Gerald N. Fluegel, M. C., U. S. Army, Philadelphia, The Physician in War Time.
Dr. Lewis T. Buckman, Wilkes-Barre, Round-Up of State Society Activities.
Dr. Robert L. Anderson, Pittsburgh, Postgraduate Opportunities.
Dr. Chauncey L. Palmer, Pittsburgh, Health Legislative Problems.

Following a luncheon, fifty year testimonial certificates were presented to Drs. William E. Keller, Scranton, David H. Ludlow, Easton, Walter M. Reedy, Dalton, and John G. Wilson, Factoryville.

Philadelphia

Chief Physician of Harvard Unit in England.—Dr. Alexander J. Steigman, member of the staff of the University of Pennsylvania School of Medicine, has been appointed chief physician to the American Red Cross Harvard Field Hospital Unit in England. He was also given a concurrent appointment of instructor in pediatrics and preventive medicine in the Harvard Medical School, Boston. Dr. Steigman graduated at Temple University School of Medicine in 1938. In May 1941 he went to England as a member of the Red Cross Harvard Hospital Unit, where he has been working in the prevention and control of infectious diseases, operating a mobile team from the one hundred and twenty-five bed hospital base somewhere in England.

Faculty Changes at Jefferson.—Included among the recent changes at Jefferson Medical College of Philadelphia are:

Dr. Hobart A. Reimann, appointed acting head of the department of experimental medicine.
Dr. Baldwin L. Keyes, professor of psychiatry.
Dr. Martin E. Rehfuss, Sutherland M. Prevost lecturer in therapeutics in the department of medicine.
Dr. Clifford B. Lull, clinical professor of medicine.
Dr. Garfield G. Duncan, clinical professor of medicine.
Dr. William J. Harrison, associate professor of ophthalmology.
Dr. David R. Morgan, associate professor of pathology.
Dr. Robert A. Matthews, associate professor of psychiatry.
Dr. William H. Schmidt, associate professor of physical therapy.
Dr. Mario A. Castallo, assistant professor of obstetrics.
Dr. Arthur First, assistant professor of obstetrics.
Dr. Robert A. Groff, assistant professor of neurosurgery.
Dr. Reynold S. Griffith, assistant professor of medicine.

RHODE ISLAND

State Medical Election.—Dr. Charles F. Gormly, Providence, was elected president of the Rhode Island Medical Society at its annual meeting, May 21. Drs. Murray S. Danforth, Providence, and Elihu S. Wing, Providence, are vice presidents and Dr. William P. Buffum, Providence, was reelected secretary. The next annual session will be held at Providence, June 2-3, 1943.

Meeting of Pathologists.—The Rhode Island Society of Pathologists held its annual meeting of the current season at the Memorial Hospital, Pawtucket, June 19, to hear the following program: Drs. John F. Kenney, Pawtucket, "How a Tumor Clinic Should Function"; George Raymond Fox, East Providence, "Indications for Treatment with Radium," and Emanuel W. Benjamin, Providence, "Indications for Treatment with X-Ray Therapy." Drs. Benjamin Earl Clarke, Providence, and Louis Goodman, Harvard, were reelected president and secretary, respectively.

TEXAS

Gifts to State Society's Library.—Dr. and Mrs. Neil D. Buie, Marlin, recently established a fund in their name for the Texas Memorial Medical Library Association with a gift of a $1,000 war defense bond. Dr. Preston Hunt, Texarkana, has increased the Hattie Preston Fund, established by him last year in memory of Mrs. Hunt, from $600 to $1,000. This fund is also used for library activities.

State Medical Election.—Dr. Charles S. Venable, San Antonio, was chosen president-elect of the State Medical Association of Texas during its recent annual meeting in Houston and Dr. Judson L. Taylor, Houston, was installed as president. Vice presidents are Drs. Robert B. Homan Jr., El Paso, William Howard Wells, Waco, and Hubert H. Cartwright, Breckenridge. Dr. Holman Taylor, Fort Worth, was reelected secretary. San Antonio was chosen as the place for the 1943 meeting.

Changes in Health Officers.—Dr. Elbert Goolsby was recently appointed health officer of Paris.——Dr. Fred W. Sutton was placed in charge of the health department of Beaumont, succeeding Dr. Charles Hugh Todd Jr., Beaumont, resigned.——Dr. William G. Carnathan, Henderson, has been appointed health officer of Rusk County, succeeding Dr. Jesse E. Ross, Henderson, who has accepted a commission in the U. S. Navy.——Dr. Robert L. Cherry, Austin, has resigned as field director of local health services with the state department of health to become director of the Harris County Health Department.

WISCONSIN

Changes in Health Officers.—Dr. Garret J. Flanagan, Kaukauna, has been appointed city health officer to succeed Dr. Charles D. Boyd.——Dr. Herman M. Lynch is health officer of West Bend, filling the vacancy that occurred when Dr. Willibald J. Wehle resigned.——At a meeting of the Cudahy Board of Health on April 27 Dr. Sarkis H. Kash was named health commissioner.

Dr. Ziegler Succeeds Dr. Sleyster at Wauwatosa.—Dr. Lloyd H. Ziegler, associate director of the Milwaukee Sanitarium, Wauwatosa, has been appointed medical director of the sanitarium to succeed the late Dr. Rock Sleyster. Dr. Ziegler graduated at the University of Minnesota Medical School, Minneapolis, and in 1931 was professor of neuropsychiatry at the Albany Medical College, New York.

GENERAL

Examinations in Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories (part I) for all candidates will be held in various cities of the United States and Canada on Feb. 13, 1943. Candidates who successfully complete the part I examination proceed automatically to the part II examination held later in the year. Effective this year there will be only one general classification of candidates, all now being required to have been out of medical school not less than eight years, having in that time completed an approved one year general rotating internship and at least three years of approved special formal training or its equivalent in the seven years following the intern year. All candidates must be citizens of the United States or Canada before being eligible for admission to examination. All candidates will be required to take the part I examination, which consists of a written examination and the submission of 25 case history abstracts and the part II examination (oral-clinical and pathology examination). The part I examination will be arranged so that the candidate may take it at or near his place of residence, while the part II examination will be held late in May 1943 in that city nearest to the largest group of applicants. Time and place of the latter will be announced later. Further information may be obtained from Dr. Paul Titus, secretary, 105 Highland Building, Pittsburgh.

Special Society Elections.—Dr. Clyde L. Deming, New Haven, Conn., was chosen president-elect of the American Urological Association at its annual executive session on June 3 in New York, and Dr. Cyrus E. Burford, St. Louis, was installed as president. Drs. Thomas D. Moore, Memphis, Tenn., and Herbert H. Howard, Boston, are secretary and treasurer, respectively.——Dr. Wilder G. Penfield, Montreal, Que., was elected president of the American Branch of the International League Against Epilepsy in Boston, May 18; Dr. Charles D. Aring, Cincinnati, vice president, and Dr. Frederic A. Gibbs, Boston, secretary-treasurer.——Dr. Ernest Sachs, St. Louis, was elected president of the American Neurological Association at its annual meeting in Chicago, June 6, and Dr. Henry A. Riley, New York, was reelected secretary.——Dr. Arthur Bruce Gill, Philadelphia, was chosen president-elect of the American Orthopaedic Association at its annual meeting in Baltimore, June 6, and Dr. Frank R. Ober, Boston, was installed as president. Dr. Charles W. Peabody, Detroit, was reelected secretary.——At the annual meeting of the American Otological Society in Atlantic City, May 29, Dr. Wesley C. Bowers, New York, was chosen president and Dr. Isadore Friesner, New York, was reelected secretary.——Dr. Walter E. Vest, Huntington, W. Va., was elected president of the American Therapeutic Society at its annual meeting, June 6, and Dr. Oscar B. Hunter, Washington, D. C., was reelected secretary.——Dr. Eugene M. Landis, Charlottesville, Va., was elected president of the American Society for Clinical Investigation during its meeting in Atlantic City, N. J., May 4. Dr. Frank L. Horsfall Jr., New York, was named vice president; Dr. Wesley W. Spink, Minneapolis, secretary, and Dr. Charles A. Janeway, Boston, treasurer.

Life Expectancy Reaches All Time High in 1941.—The *Statistical Bulletin* of the Metropolitan Life Insurance Company reports that the average length of life as computed on the basis of mortality among the company's industrial policyholders in 1941 was 63.42. This establishes an all time high for the sixty years for which the company has been recording this information. The estimated life expectancy for the period 1879-1889 was about 34 years. The report points out that one aspect of the improvement is that the average industrial policyholder at age 35 today still has as many years of life before him as the child in the wage earning family of 1879-1889 had at the time of its birth. Through the entire period the expectation of the life of white persons has always exceeded that of Negroes by a considerable margin. The current figures (1941) at age of 5 are 60.33 years for white males and 55.63 years for Negroes. For females, the corresponding figures are 64.99 for the white and 57.71 for Negroes. For Negro males, ages 15 to 33, the mortality rates are more than twice those for white males. In the case of females, the ratio of Negro to white mortality is more than two to one at each age from 12 to 49 years; in fact, at ages 15 to 24 the ratio is more than three to one. Children in wage earning families experienced exceptionally low mortality rates in 1941. For example, mortality rates of less than 1 per thousand were experienced by white females at ages from 8 to 13, by white females at ages from 5 to 18, and by Negro females at ages 8 to 11. The lowest mortality rate experienced by Negro males was at age 9; namely, 1.13 per thousand. In the case of white persons, mortality among men is greater than among women at each age of life, but among Negroes the rate for females is higher than that for males at ages from 15 to 24 years. This situation arises mainly from the much greater incidence of disorders of pregnancy and childbirth among Negro women as compared with white women.

Providence Medical Association to Help Members in Military Service.—In a special issue devoted to military medical matters, *Medical News*, published by the Providence Medical Association, outlines a plan whereby the accounts left behind by doctors who go into active military service will be looked after at a minimum expense of collection. By this plan the doctor called into military service would submit his collectable personal medical accounts to the office of the Providence Medical Association, which will analyze them before the doctor leaves for service and in most cases would restrict the accounts to those not more than six months due. A special letter signed by the doctor would be sent to each patient stating that the doctor has entered the military service and requesting that payments on account be made through the executive office of the Providence Medical Association. Later a statement would be mailed from the association on a billhead bearing the doctor's name to indicate the balance due and to urge prompt payment as an expression of the patient's appreciation of the doctor's patriotic response to his country's call. Thereafter for a specific period statements will be mailed monthly, and accounts failing to respond would be turned back to the doctor for his personal disposition. The association would also make payments monthly to the person designated by the doctor. The executive office of the Providence Medical Association extends this service on a cost basis to its members in good standing who are in active military service. The service charges will cover only the cost of mailing the statements and that of secretarial work. This special issue of *Medical News* contains brief statements by the governor of Rhode Island, the mayor of Providence, the president of the Rhode Island Medical Society, the president of the Providence Medical Association and high ranking officers of the army and navy expressing appreciation of the patriotism of the doctors from Providence who have already entered the military service and pointing out to those who have not yet done so that the need for additional doctors for the armed forces is especially urgent at this particular time.

Tire Rationing Regulations.—So serious is the situation as regards rubber available for tires that the Office of Price Administration has made new regulations regarding the rationing of tires for motor cars of persons in the medical and religious professions. The regulations follow:

OFFICE OF PRICE ADMINISTRATION

An amendment to the tire rationing regulations, which tightens requirements in some respects and extends eligibility for tires to certain automobile users heretofore not provided for, has been issued by the Office of Price Administration. The amendment:

1. Requires that a vehicle operated by a physician, surgeon, farm veterinary or practicing minister, to be eligible for tires and tubes, must be used "exclusively" for professional services or religious duties instead of "principally" as heretofore.

2. Makes licensed chiropractors and osteopaths eligible under the same conditions as apply to doctors of medicine.

3. Extends the eligibility of ministers to "any religious practitioner qualified to administer to the religious needs of the members of a congregation."

4. Changes the designation of nurses eligible for tires from "visiting nurse" to "public health nurse."

5. Extends eligibility for recapped or obsolete new tires to public school officials and teachers for necessary transportation between schools.

The eligibility standards for doctors and ministers have been changed to require that applicants must show that the vehicle on which a tire or tube is to be mounted is necessary because there is no other practicable means of transportation. Heretofore the requirement was a showing that the car was needed and used in making professional calls. Even under the new standards, however, if it is necessary for the applicant to answer emergency calls as a part of his professional practice, he may be issued a certificate to enable him to use his car between his home, his office and hospitals.

In making osteopaths and chiropractors eligible under the same conditions as apply to physicians, the OPA recognized that there are substantial numbers of people who rely solely on the treatments of such practitioners.

The term "public health nurse" instead of "visiting nurse" was adopted to define more accurately the type of nursing service that makes an applicant eligible. Eligibility is not extended to any group not covered heretofore. The new term includes school nurses employed by boards of education for work with school children, visiting nurses employed by groups such as public health nursing associations, health department nurses, county nurses and industrial nurses, all of whom are employed for the purpose of making nursing or inspection calls for such agencies.

By the change in the section dealing with ministers, eligibility is extended to qualified practitioners of religious groups, such as the Christian Science Church, under the same requirements as apply to other ministers.

Public school officials and teachers are given eligibility for recapped tires or obsolete new tires only when they need automobiles to get them from one school to another in areas where there is no other practicable means of transportation. The vehicles must be used principally for this purpose or other eligible purposes. Certificates will not be issued to any teacher or official whose duties are performed wholly at one school, as the purpose of the amendment is to make tires available to teachers who conduct classes in several schools, and to supervisors who cannot meet the requirements of their positions without them.

Amendment 17, which makes the revisions, becomes effective July 1.

(Document 1614)

TITLE 32—NATIONAL DEFENSE

CHAPTER XI—OFFICE OF PRICE ADMINISTRATION

Part 1315—Rubber and Products and Material of Which Rubber is a Component

Amendment No. 17 to Revised Tire Rationing Regulations (7 F. R. 1027, 1089, 2106, 2107, 2541, 2633)—Tires and Tubes, Retreading and Recapping of Tires, and Camelback.

Section 1315.405 (*a*) and (*b*) are amended to read as follows: and a new subparagraph (9) is added to section 1315.504 (*a*), as set forth below:

Tires and Tubes for Vehicles Eligible Under List A

Section 1315.405 ***Eligibility classifications: List A.***

(*a*) (1) A vehicle operated by a physician, surgeon, osteopath, chiropractor, farm veterinary or public health nurse, which is necessary for the performance of professional duties and is used exclusively for such purpose.

(i) The board may issue certificates under this paragraph only to physicians, surgeons, osteopaths, chiropractors or farm veterinaries who are licensed by the appropriate governmental agency or to public health nurses, if the use of a motor vehicle is necessary for the performance of their professional duties because of the nature of such duties and the absence of other practicable means of transportation.

(ii) No certificate shall be issued under this paragraph unless the applicant shows that the motor vehicle on which the tire or tube is to be mounted is used exclusively for his professional duties. If the applicant's professional practice requires his answering emergency calls, the board may issue certificates to enable the applicant to use his vehicle for transportation between his home and his office or a hospital, even though other practicable means of transportation are available.

(iii) For the purpose of this paragraph, "public health nurse" shall mean a nurse who is employed by a clinic, hospital, government agency or similar organization, or by an industrial concern, to make nursing or inspection calls for such agencies. The term "public health nurse" does not include private nurses.

(*b*) (1) A vehicle operated by a regularly practicing minister of any religious faith who serves a congregation or any religious practitioner qualified to administer to the religious needs of the members of a congregation, if such vehicle is necessary for the performance of his religious duties because of the absence of other practicable means of transportation and is exclusively used for such purpose.

(i) No certificate shall be issued under this subparagraph unless a motor vehicle is necessary to enable the applicant to perform the religious duties required under the beliefs of his church because of the absence of other practicable means of transportation and is used exclusively for such purpose.

LEON HENDERSON,
Administrator.

Government Services

Dr. Bolten in Charge of Quarantine Activities at Puerto Rico

Dr. Joseph S. Bolten, medical director, U. S. Public Health Service, has been relieved at Boston and assigned to San Juan, P. R., to assume charge of quarantine and relief activities there and to serve as director of Public Health Service District No. 6. He will also serve as liaison officer between the Puerto Rican Health Department, U. S. Army, Public Health Service and Insular Health Departments.

Changes in Department of Agriculture

Stanley B. Fracker, Ph.D., chief of the division of plant disease control of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, has been appointed research coordinator on the staff of Eugene C. Auchter, Ph.D., agricultural research administrator. Dr. Fracker will coordinate research dealing with plant diseases and insects affecting plants and animals and review plant pest control programs. He will be succeeded in the division of plant control by James F. Martin, Ph.D. All are of Washington, D. C.

Entomologist Retires

Lon A. Hawkins, Ph.D., Washington, D. C., is retiring as head of the division of control investigations in the bureau of entomology and plant quarantine, the U. S. Department of Agriculture announces. Curtis P. Clausen, M.S., Washington, D. C., head of the division of foreign insect parasite introduction, will take over the work of the division of control investigations in addition to his parasite work until permanent arrangement are made for administration of this activity. Dr. Hawkins has been with the department of agriculture for thirty-five years.

New Section on Foreign Health Relations

The Surgeon General of the U. S. Army has established a section on foreign health relations in the division of foreign and insular quarantine, placing Medical Director Charles V. Akin, Washington, D. C., in charge. According to the *Military Surgeon,* the new section aims to establish and maintain liaison with the department of state, Pan American Sanitary Bureau, offices of the surgeon general of the army and of the navy and other agencies for the proper collection and routing of information on foreign health and medical problems, including information on bacteriologic warfare.

Dr. Armstrong Joins Public Health Service

Dr. Donald B. Armstrong, third vice president of the Metropolitan Life Insurance Company in charge of health and welfare work of policyholders, New York, has been appointed a senior surgeon in the reserve corps of the U. S. Public Health Service. Dr. Armstrong's appointment to the public health service reserve is on a basis of inactive status, without compensation, barring major emergencies calling for additional aid of physicians with public health training. For the time being, he is assigned to his present task in connection with the public health, nursing, educational and medical research activities of the Metropolitan's welfare division.

Industrial Hygiene for Federal Employees

At the request of the Federal Council of Personnel Administration, the Division of Industrial Hygiene has completed a survey of the dispensaries and hygiene services in federal departments located in Washington, D. C. These dispensaries for the most part are established and administered by the departments and bureaus concerned. It was found that of eighty-five dispensaries employing one hundred and fifty-five nurses, not more than twenty were under the supervision of a physician. Functions, activities, number of personnel and physical equipment varied widely. In no government agency was there found a comprehensive program of environmental and personal hygiene and preventive medicine such as is recommended for private industry.

These findings, with recommendations for establishment of a modern employees' health program in federal agencies, were forwarded by the Surgeon General of the U. S. Public Health Service to the Council of Personnel Administration on June 2. The over-all recommendations called for improvement in organization, personnel, utilization of space and equipment in these dispensaries with the provision that all should be operated under medical supervision. Specific recommendations for the program included:

1. A good preplacement examination, including a chest roentgenogram, a serodiagnostic test for syphilis, urinalysis and other laboratory studies as indicated.
2. Treatment of minor medical emergencies, including dental service, and referral of serious cases to private physicians.
3. Psychiatric consultation in cases of minor emotional disturbances and of serious mental illnesses.
4. Nutrition consultant services both for government cafeterias and for consultation on special individual problems, such as overweight, underweight and diabetes.
5. Elimination or control of environmental hazards, such as inadequate lighting, gross overcrowding and defective ventilation, including supervision of air conditioning.
6. Systematic reporting and recording of absenteeism, including comparison of absenteeism in the several agencies.
7. Promotion of health education.

It was further recommended that the Public Health Service be given the responsibility for organizing and supervising the program in order to secure uniform services of high quality for the two hundred and fifty thousand federal employees in and around Washington. The special consultant services would also be provided by the Public Health Service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 23, 1942.

Army Convalescent Depots

Army convalescent depots are maintained for the reception of soldiers who require no further active treatment and are likely to become fit for duty within a short period. The aim is to hasten convalescence and harden by graduated exercises under medical supervision. Much experience was gained in running these depots in the last war. The establishment then was for 2,000 patients per depot. In summer they can be accommodated in tents and marquees, but hutments or buildings have to be used in winter. The men go through a graded training so as to fit them for duty on discharge. If a patient relapses, he is returned to the hospital. One who cannot be made fit to return to full duty may be brought before a medical board to decide whether to discharge him from the army or lower his medical category so that he can be employed on duties for which he is capable.

In this war the cases dealt with have been among men convalescing from sickness, convalescing from operations performed to make them fit for service or convalescing from the French and Norwegian campaigns, and a considerable number of French, Polish, Czech, Dutch and Belgian soldiers evacuated to this country. The treatment includes physical training to inculcate rhythm, balance and mental alertness as well as to exercise the muscles, organized games with instructors, intellectual amusement, talks and lectures. Classes in mathematics and languages are established. Psychiatrists deal with neuroses.

Civilian Protection Against Poison Gas

Every civilian is provided with a respirator for protection against poison gas and special ones have been provided for iniants. At the time of the air raids respirators were regularly carried, but with their almost complete cessation masks are seldom seen in the streets. However, after the statement that an attack with poison gas on the Russians is projected, people are warned by the government to test their respirators and see that they are in order. A steady overhaul of anti-gas precautions has taken place in the last few months. Local authorities and civil defense workers have been busy checking and examining respirators issued to civilians. Great importance is attached to the injunction to practice wearing masks for a short time each day. It has been found that some masks have become faulty, mainly because the owners screwed them into containers they were never intended to fit. The warning is given again "Always carry your gas mask." Some concern has been expressed as to the possible discovery and use by the enemy of some new and more deadly gas. But an official of the Ministry of Home Security has stated that there is no gas known to scientists as a possible war gas against which the civilian respirators are not a protection.

Medical Women Demand Equality with Men in the Fighting Services

This war is remarkable for the extent to which women's services are used, though not, except perhaps in Russia, in the actual fighting. Women physicians are being employed, but their old demand for equality to men is giving rise to some trouble. In a letter to the medical press the president of the Medical Women's Federation, Dr. Clara Stewart, states that they are most anxious that women should respond to the appeal for doctors in the fighting forces, but the federation is profoundly disturbed that the established principle of complete equality with men is infringed. When a medical man receives a commission in the fighting services it is argued that he is a soldier as well as a doctor, that he may be asked to carry out combatant duties, and he is given general disciplinary powers. A medical woman is offered a commission in the women's forces for service with the medical corps. It is argued that there is no authority for offering her a commission in the medical services; that she cannot have disciplinary powers and combatant duties.

The president says that her letter is not the place to enter into the validity of these arguments and admits that women doctors are in complete equality with men as regards pay and allowances and have "relative rank"; also that as a rule they work happily under their commanding officers and receive fair and just treatment. But the federation holds that they suffer a definite handicap. They are not members of any service and have no settled status. Regulations peculiar to them may be made at any time. The federation is strongly of the opinion that to grant women commissions in the medical service would promote greater efficiency and stability. This would insure a recognized status and the protection of a professional body having defined conditions and established precedents. The present inequality is a retrograde step contrary to the principles accepted as fundamental by the British Medical Association. The federation therefore advises medical women to accept "relative rank" for the time being, but not to accept commissions in the women's forces, which would permanently put them in a separate category from their male colleagues.

Closing of Medical Posts in London's Air Raid Shelters

During the period of air raids on London two hundred and three medical air raid posts, attended by physicians and three hundred and ninety nurses, were maintained by the Ministry of Health. The main object of this medical service, which has been in existence since the winter of 1940, was to prevent the spread of infectious disease. Now that the most dangerous season for epidemics has passed and with the cessation of air raids on London for nearly a year, the number of persons who regularly sleep in air raid shelters has fallen to eight thousand six hundred, an average of forty-three per medical aid post. The Ministry of Health has therefore closed nearly all these posts. Those in shelters regularly used by more than five hundred persons will remain open.

Avascular Necrosis in Fractures and Other Lesions of Bone

At the Section of Radiology of the Royal Society of Medicine Mr. Watson-Jones opened a discussion on avascular necrosis in fractures, dislocations, Perthes disease, congenital necrosis and monarticular osteoarthritis of the hip. The femoral head derived its blood mainly from the capsular vessels. Rupture or thrombosis of these arteries producing avascular necrosis was the pathologic condition found in degenerative arthritis after fracture of the neck of the femur, traumatic dislocation and epiphysial displacement. It was also the condition found in Legg-Perthes disease and probably in many cases of unexplained monarticular arthritis of the hip. In nailed fractures of the femoral neck there were five radiographic signs of avascular necrosis: 1. Within a few weeks the head appeared relatively dense because it did not participate in disuse decalcification. But this sign was masked by early functional activity, which minimized the effect of disuse. Films should therefore be taken at the sixth, eighth and tenth weeks. If one film showed a dense head, the blood supply was impaired and necrosis would supervene. 2. Within a few months the nail showed increasing penetration of the head, especially if weight bearing was permitted. 3. After several months the nail ploughed upward and forward through the head; necrosis was more complete, and the nail must be removed and bifurcation osteotomy performed. 4. After six to twelve months, union of

the fracture was incomplete despite successful and accurate nailing. If the nail had been inadvisedly removed and displacement had recurred, renailing was not indicated; a bifurcation osteotomy was better. 5. After several years, degenerative arthritis proved that the head was avascular, even if earlier signs had been overlooked.

Avascular necrosis developed in about 30 per cent of fractures of the femoral neck treated with operative reduction which damaged capsular vessels and in about 15 per cent of fractures treated by extra-articular nailing. The nail itself played no part; necrosis was no less frequent and no less severe when it was not used. Necrosis occurred in over 30 per cent of recent dislocations and in nearly 100 per cent of overlooked dislocations where operative reduction and capsular dissection were necessary. Legg-Perthes disease was an avascular necrosis of the upper femoral epiphysis, which might be due to fracture of the neck in children, traumatic dislocation of the hip with rupture of the capsule in children, operative reduction of a congenital dislocation with dissection of the capsule, any operation on the hip which involved capsular injury, or any thrombosis or embolism of capsular vessels. Treatment by immobilization in plaster was worthless. Coxa plana could be avoided and a normal contour of the head preserved by traction and recumbence for one or two years. But the regenerated articular cartilage was likely to be imperfect and a late arthritis might supervene. The frequency of osteoarthritis of the hip joint was due to the precarious blood supply of the femoral head, the vulnerability of the capsular vessels and their lack of anastomosis with other vessels. Osteo-arthritis of the hip joint was the adult form of Legg-Perthes disease.

Czechoslovak Medical Journal Published in London

The historic role of England as a refuge from persecution on the continent of Europe has never been so great as it is today. We have now colonies of the inhabitants of almost every European nation, refugees from German barbarity. In large numbers they have joined our fighting forces, and their uniforms are a common sight in the streets. These nations have their own clubs and other organizations here. As reported previously in THE JOURNAL, a Polish university has been formed within the confines of Edinburgh University, and the Royal College of Surgeons has examined Czech students for their diplomas. The Czechs are now publishing a medical journal in London, the *Bulletin of the Czechoslovak Medical Association in Great Britain.* In the first number, which is entirely in English, there is a foreword by Lord Horder, who says that medicine knows no racial distinctions and recognizes no geographic boundaries. The paralysis of its advance is one of the most serious effects of Germany's crime committed against civilization. But the pages of this journal show that the spirit of colleagues who in this country keep the flame of learning and healing alight cannot be killed.

Dr. Karel Machacek, director of the department of public health of the Czechoslovak Ministry of Social Welfare, describes its work in Britain. Shortly after the Czechoslovak government was formed in London a department of public health was set up under this ministry. The temporary separation from their territory ruled out many branches of their activities, but the members of the department were able to acquire much knowledge of the public health system of a great country, which will be valuable for the restoration in free Czechoslovakia. The hardships of the refugees, the sudden change of climate, different food and social conditions and anxiety produced a morbidity among civilians as high as 25 per cent. Medical care is carried out in cooperation with the Czechoslovak Red Cross, which has a well equipped clinic with social workers. Soldiers invalided out of the Czechoslovak army form a separate group. In addition to allowances and medical attention they are supplied with artificial limbs. Hospital accommodation has been provided through the generous cooperation of the English hospitals. The department has helped in obtaining employment for the two hundred and fifty Czechoslovak physicians in Britain. As Czechoslovakia will be in need of physicians after the war and all its universities have been closed, it is important that Czechoslovak undergraduates living here should complete their studies. Thanks to the British medical schools, many are now completing their interrupted studies. Efforts are also being made to train the greatest possible number of nurses, who will also be required when they go home.

Dr. Oscar Klinger, medical director of the Czechoslovak Red Cross in London, describes the work in Britain. It now maintains an extensive clinic with special departments for diseases of the eye, ear, nose and throat and of the skin. Dr. F. Horowitz describes the welfare work of the Refugee Fund. The work of the Czechoslovak physicians in Britain is outlined. Soon after arriving, application was made by them for leave to settle here. The majority of those in Britain are now employed. The demand for Czech physicians in the merchant navy now exceeds the supply. The number concludes with an account of health services and social insurance in the Czechoslovak republic.

Age and the Council of the Royal College of Surgeons

In a joint letter which has appeared in the medical press a number of the younger surgeons, in view of the forthcoming election to the council of the Royal College, call attention to the fact the average age of its members is over 62 years and three are septuagenarians. In their view the council needs reinforcement with younger surgeons to help to shape its policy in these anxious times. A fellow is elected to the council for a first term of eight years, and it is the custom that he should serve a second, making sixteen years in all. Of late there has been an increasing tendency for members of the council to seek a third term. The signatories regard this as harmful, as it increases the number of septuagenarians and delays the successful canditature of men of the right type and age, so that they either abandon their hopes or have to apply when already too old. In the present election two members of the council are offering themselves for a third term, while other candidates are of such an age that the end of the first term will bring them near 65. The trend of affairs shows that the profession must face complex problems in the reorganization of the whole structure of our professional lives and our relation to the state. Those who have to live and work in the new world should help to fashion it. Hence the need for younger men on the council.

There is force in these arguments, but something can be said on the other side. The government of the college is and always has been excellent under the present system. The elders of the council are some of the most eminent men in the profession and are fully competent for their duties. It is well known that in eminent men the mental faculties are often well preserved late in life.

Marriages

GABEL G. HIMMELWRIGHT JR., Newport News, Va., to Miss Margaret Elizabeth Hodges of Washington, N. C., in April.

CHARLES J. DONALD JR., Fairfield, Ala., to Miss Eileen Maude Medler of Seattle in Rochester, Minn., April 12.

CHARLES H. POOLE JR. to Miss Nancy Cleveland, both of Spartanburg, S. C., April 6.

EDWARD G. SCHOTT to Miss Barbara Allman, both of Sheboygan, Wis., March 28.

FLOYD THOMAS BOUDREAU to Miss Margie Sellers, both of Mobile, Ala., recently.

Deaths

Marcus Ward Lyon Jr. ✠ South Bend, Ind.; Columbian University Medical Department, Washington, D. C., 1902; instructor of bacteriology at the North Carolina Medical College, Davidson, 1897-1898; assistant professor of physiology, 1903-1904 and from 1907 to 1909, and professor of bacteriology from 1909 to 1915, Howard University, Washington, D. C.; professor of bacteriology and pathology from 1915 to 1917 and professor of veterinary zoology and parasitology, 1917-1918, George Washington University, Washington; certified by the American Board of Pathology, Inc.; member of the American Association of Pathologists and Bacteriologists, Society of American Bacteriologists, American Society of Clinical Pathologists, American Society of Parasitologists, American Ornithologists' Union, Washington Academy of Sciences and the American Society of Tropical Medicine; past president of St. Joseph County (Ind.) Medical Society; secretary of the Biological Society of Washington from 1915 to 1919; past president of the American Society of Mammalogists; past president and treasurer of the Indiana Academy of Science; aide, later assistant curator, division of mammals, U. S. National Museum, Washington, from 1898 to 1912; served during World War I; pathologist, Walter Reed General Hospital, Washington, from 1917 to 1919; pathologist, South Bend Clinic; author of "Mammals of Indiana"; aged 67; was found dead, May 19, of coronary disease.

Henry Dwight Chapin ✠ Bronxville, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1881; chairman of the Section on Diseases of Children, American Medical Association, 1912-1913; emeritus professor of pediatrics at the New York Post-Graduate Medical School and Hospital; founder of the Speedwell Society; charter member and in 1910 president of the American Pediatric Society; in 1933 received a medal from Columbia University "for outstanding contributions to problems relating to the care of children and as a pioneer in hospital social service"; formerly member of the board of directors of the New York Post-Graduate Medical School and Hospital and chairman of its social service committee; formerly supervising physician of the children's department, New York Post-Graduate Hospital; attending physician at the Willard Parker and Riverside hospitals; consulting physician to the Randall's Island Hospital, St. Agnes Hospital at White Plains, Convalescent Home for Children at Sea Cliff and the Hackensack (N. J.) Hospital; co-author with Dr. L. T. Royster of "Pediatrics" and with Dr. G. R. Pisek of "Diseases of Children"; author of "Theory and Practice of Infant Feeding," and "Heredity and Child Culture"; aged 85; died, June 27.

Maximilian John Hubeny ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1906; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; certified by the American Board of Radiology; secretary of the Section on Radiology of the American Medical Association from 1923 to 1926; member of the American Roentgen Ray Society; member and past president of the Radiological Society of North America, Chicago Roentgen Society and the American College of Radiology; fellow of the American College of Physicians; professor of roentgenology and chairman of the department, Cook County Graduate School of Medicine; chief of the x-ray department, Cook County Hospital; formerly roentgenologist, Henrotin Hospital and the Municipal Tuberculosis Sanitarium; formerly editor of *Radiology*, and associate editor of the *American Journal of Cancer, Italian Journal of Radiology* and the *Cuban Journal of Radiology*; in 1931 was awarded a gold medal by the Radiological Society of North America for research; aged 61; died, July 2.

Roy Knight Flannagan, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1894; formerly health officer of Charlottesville; director of inspection, state health department in 1910; in 1915 assistant state health commissioner; health commissioner of Richmond, 1917-1918; appointed director of the rural health work, venereal disease control and tuberculosis outpatient service, state health department, in 1919; since 1932 assistant commissioner of health on detail duty in connection with medical service in local prisons with the title of medical adviser, state department of public welfare; past president of the State Conference of Charities and Corrections and formerly secretary of the Virginia Tuberculosis Association; member of the Medical Society of Virginia, Richmond Academy of Medicine, Southern Medical Association, American Association for the Advancement of Science, American Public Health Association, American Geographic Society and the American Prison Association; aged 71; died, June 17.

Edson Brady Fowler ✠ Evanston, Ill.; Northwestern University Medical School, Chicago, 1896; instructor in clinical medicine at his alma mater from 1898 to 1911; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons and the Institute of Traumatic Surgery; president of the Evanston Branch of the Chicago Medical Society, 1927-1928; major in the medical corps of the U. S. Army during World War I, during which time he was chief orthopedic surgeon at Camp Shelby, Miss., and Fort Sheridan, Ill.; formerly president of the staff, and for many years chief of the department of fractures and orthopedic surgery at St. Francis Hospital, where in 1940 he was placed on the emeritus staff; aged 77; died, June 22, of cerebral hemorrhage.

Charles Howard Evans Sr., Waddington, N. Y.; Syracuse University College of Medicine, 1909; health officer of the town of Waddington; formerly member of the health department of Syracuse; served during World War I; at one time on the staffs of the Crouse-Irving and Psychopathic hospitals at Syracuse, Lewis County Hospital at Lowville and the House of the Good Samaritan at Watertown; aged 59; died, May 10, in the A. Barton Hepburn Hospital, Odgensburg, of a cellulitis of the neck and mediastinum caused by hemolytic Staphylococcus aureus.

Irwin Hoffman Neff ✠ Detroit; University of Maryland School of Medicine, Baltimore, 1889; member of the American Psychiatric Association; formerly assistant physician at the Kalamazoo (Mich.) State Hospital and on the staff of the Pontiac (Mich.) State Hospital; at one time superintendent of the Foxboro (Mass.) State Hospital; on the staff of the Grace Hospital; served as major in the medical corps of the U. S. Army during World War I; aged 73; died, May 11, in St. Joseph's Mercy Hospital.

Saul Joseph Selkin, New York; Albany Medical College, 1910; member of the Medical Society of the State of New York; certified by the American Board of Otolaryngology; formerly instructor and associate in otolaryngology at the New York Post-Graduate Medical School and Hospital; assistant attending otolaryngologist to the New York Post-Graduate Hospital and Dispensary; aged 58; died, April 20, in Tucson, Ariz., of hemorrhage from erosion of right internal carotid artery.

August Edward Gerhardt ✠ Wenatchee, Wash.; Northwestern University Medical School, Chicago, 1909; member of the Pacific Coast Surgical Association; fellow of the American College of Surgeons; certified by the American Board of Surgery; served as a major during World War I; lieutenant colonel in the medical officers' reserve corps; assistant division surgeon, Great Northern Railroad; on the staff of the Central Washington Deaconess Hospital; aged 59; died, May 3.

George Arthur Reed ✠ Erie, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; for many years president of the Erie County Health and Tuberculosis Association; member of the board of health of Erie; formerly member of the board of trustees of the Warren (Pa.) State Hospital; member of the advisory board of the Erie County Tuberculosis Hospital; on the staff of St. Vincent's Hospital; aged 73; died, May 12.

Minnie Celia Tucker Love, Denver; Howard University College of Medicine, Washington, D. C., 1887; member of the Colorado State Medical Society; formerly member of the state board of health; at one time member of the state house of representatives; formerly member of the city board of education; served on the staff of the Florence Crittenton Home; aged 86; died, May 12, in the Presbyterian Hospital.

Glenn Grieve, Big Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1918; member of the Michigan State Medical Society; at one time secretary of the Mecosta County Medical Society; formerly member of the school board; until recently chairman of the county draft board; on the staff of the Community Hospital; aged 62; died, May 3.

James Beaty Griffith ✠ Washington, D. C.; University of Tennessee College of Medicine, Memphis, 1918; member of the American Academy of Ophthalmology and Otolaryngology; certified by the American Board of Ophthalmology; staff surgeon of the Episcopal Eye, Ear and Throat Hospital; aged 51; died, May 6, of a self-inflicted bullet wound.

James Patrick Glynn, Brooklyn; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; fellow of the American College of Surgeons; consulting obstetrician and gynecologist, St. Mary's Hospital; consulting gynecologist, Williamsburgh Hospital; Rockaway Beach (N. Y.) Hospital; aged 72; died, May 8.

Julia Clark Strawn ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; fellow of the American College of Surgeons; on the staff of the Chicago Memorial Hospital; aged 73; died, May 31, at New Salem, Ill.

Carl Helmuth Mueller Jr., Brooklyn; Cornell University Medical College, New York, 1911; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; aged 52; on the staffs of the Bethany Deaconess Hospital and the Wyckoff Heights Hospital, where he died, May 21.

Iver Ferdinand Selleseth ✠ Minneapolis; University of Minnesota Medical School, Minneapolis, 1916; member of the Clinical Orthopaedic Society; served as a captain in the medical corps of the U. S. Army during World War I; on the staff of the Lutheran Deaconess Home and Hospital; aged 52; died, May 12.

Alfred Stephen Doyle ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; member of the American Roentgen Ray Society; at one time associated with the U. S. Public Health Service; formerly president of the staff of St. Agnes Hospital; on the staff of St. Vincent's Hospital; aged 66; died, May 1.

George McIntyre ✠ Long Beach, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; an Affiliate Fellow of the American Medical Association; member of the Minnesota State Medical Association; at one time health officer of Mayville, N. D.; aged 81; died, May 3.

William Cumback Lathrop ✠ Norton, Kan.; Chicago Homeopathic Medical College, 1902; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; member of the state board of health; on the staff of the Norton Hospital; aged 65; died, April 27.

Cornelius Joseph O'Leary, Boston; Tufts College Medical School, Boston, 1933; member of the Massachusetts Medical Society; associate medical examiner of the Northern district of Suffolk County; formerly member of the city board of health; aged 39; died, May 21, of heart disease.

Thompson Tyler Sweeny, New York; Kentucky University Medical Department, Louisville, 1897; formerly assistant professor of gynecology at the New York Post-Graduate Medical School, Columbia University; aged 67; died, May 4, while on a fishing trip near San Bernardino, Calif.

Harry Newton Moser ✠ Terra Alta, W. Va.; George Washington University School of Medicine, Washington, D. C., 1915; past president and secretary of the Preston County Medical Society; aged 69; died, April 14, in the Kercheval Memorial Clinic, Kingwood, of cerebral thrombosis.

John Charles McMillan, New Berlin, Ill.; Missouri Medical College, St. Louis, 1898; member of the Illinois State Medical Society; for many years president of the high school board of education; aged 68; died, May 15, in Rochester, Minn., of arteriosclerotic cardiovascular disease.

Barney Weeks Phillips, Milford, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1919; member of the Medical Society of the State of New York; for many years served the consolidated health district of Milford; aged 49; died, May 4.

Murison Dunn ✠ Richmond, Ky.; University of Louisville Medical Department, 1894; past president and secretary of the Madison County Medical Society; formerly county health officer; at one time acting assistant surgeon, U. S. Public Health Service; aged 70; died, May 16.

Gladstone Edwin Francisco, Miami, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1934; member of the Florida Medical Association; aged 34; on the staff of the Jackson Memorial Hospital, where he died, May 2, of an accidental overdose of narcotics.

Frank Frederick Celce, Holyoke, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the Massachusetts Medical Society; formerly on the staff of the Holyoke Hospital and the Providence Hospital; aged 74; died, April 28.

Jay Maitland Schaffer, Tremonton, Utah; Fordham University School of Medicine, New York, 1918; member of the Utah State Medical Association; past president of the Box Elder County Medical Society; served during World War I; aged 45; died, May 7.

James Thomas Reid ✠ Iola, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1901; member of the state board of health; served as a captain in the medical corps of the U. S. Army during World War I; on the staff of St. John's Hospital; aged 62; died, May 14.

Agnes Mella Edmonds, Los Angeles; Northwestern University Woman's Medical School, Chicago, 1900; formerly a medical missionary in Chungking, West China, where she was superintendent of the William Gamble Memorial Hospital; aged 71; died recently.

William Hearst McBain ✠ Malden, Mass.; Harvard Medical School, Boston, 1901; member of the New England Obstetrical and Gynecological Society; at one time city bacteriologist; formerly on the staff of the Malden Hospital; aged 68; died, May 9.

Joseph Edward Stephan, Mount Healthy, Ohio; Medical College of Ohio, Cincinnati, 1892; served during World War I; formerly on the staffs of the Veterans Administration facilities in Togue, Maine, and Marion, Ind.; aged 73; died, May 20.

Algernon R. Fike ✠ Spartanburg, S. C.; Medical College of the State of South Carolina, Charleston, 1892; formerly member of the city board of health; aged 72; died, May 13, in a hospital at Tarpon Springs, Fla., of cerebral hemorrhage.

Joseph Theodore McAndrew, La Plata, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1929; member of the Medical and Chirurgical Faculty of Maryland; aged 37; died in May.

Fred R. Gobbel, English, Ind.; Kentucky School of Medicine, Louisville, 1901; for many years bank president; aged 84; died, May 17, in the Kentucky Baptist Hospital, Louisville, of shock due to a fractured hip received in a fall.

Franklin A. Gray, Batesville, Ark.; Memphis (Tenn.) Hospital Medical College, 1905; member of the Arkansas Medical Society; medical director and owner of a hospital bearing his name; aged 64; died, May 18.

Arthur Ludwig Herman ✠ Minneapolis; University of Minnesota Medical School, Minneapolis, 1923; fellow of the American College of Surgeons; on the staffs of the Eitel and Asbury hospitals; aged 41; died, April 24.

Hattie Ashleigh Galentin Schwendener, Benton Harbor, Mich.; University of Wooster Medical Department, Cleveland, 1879; formerly on the staff of the Mercy Hospital; aged 83; died, May 10, of cerebral hemorrhage.

Samuel J. Park, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; for many years physician for the police department; aged 60; died, May 15.

Frank S. Merwin, Youngstown, Ohio; Western Reserve University Medical Department, Cleveland, 1893; member of the Ohio State Medical Association; aged 73; died, May 10, of chronic myocarditis.

Charles Allen De Voe, Berlin, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 69; died, May 1, of coronary thrombosis and arteriosclerosis.

Clarence Edward Quaife ✠ Galesburg, Ill.; Louisville (Ky.) and Hospital Medical College, 1908; aged 66; on the staff of the Galesburg Cottage Hospital, where he died, May 2, of diabetes mellitus.

John Karl Endress, St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1899; aged 83; died, May 14, in the West Side General Hospital of lymphatic leukemia.

Lucius Orange Gibson, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; aged 81; died, May 8, of coronary thrombosis.

Edward L. Bower ✠ Guthrie Center, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; aged 77; died, May 5, of myocarditis.

Charles E. Stadler, Lima, Ohio; Eclectic Medical Institute, Cincinnati, 1896; aged 78; died, May 20, in St. Rita's Hospital of arteriosclerosis and heart disease.

Charlotte Frances Hammond, Paris, Maine; Boston University School of Medicine, 1887; aged 87; died, April 15, of cerebral hemorrhage.

Albert G. Lueders, Fort Wayne, Ind.; Homeopathic Medical College of Missouri, St. Louis, 1898; aged 66; died, May 18, of heart disease.

Omer Felix Perdue, St. Louis; Meharry Medical College, Nashville, Tenn., 1916; aged 58; died in May of pneumonia.

Franklin Pierce Hoy, Watsonville, Calif.; Hahnemann Medical College of Philadelphia, 1879; aged 88; died, April 12.

Thomas Shields Collins, Los Angeles; Hospital College of Medicine, Louisville, Ky., 1886; aged 76; died, April 9.

Bureau of Investigation

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act and in cases in which they refer to drugs and devices they are designated D. D. N. J. and foods, F. N. J. The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

American Electric Vaporizer.—American Sundries Company, Inc., Brooklyn. A device consisting of a jar equipped with two electrodes and intended to produce vapors. Falsely represented on label to be efficacious in the treatment of bronchitis, asthma, whooping cough and other respiratory disorders and in purifying the air in household and public rooms by vaporizing a few drops of pine needle oil.—[*D. D. N. J., F. D. C. 185; April 1941.*]

Bromo-Citra.—Drexel Company, Elgin, Ill. Composition: principal ingredient, acetanilid, although product was represented to be derived from sodium bromide and hence misbranded. Further misbranded because falsely represented as a proper treatment for discomfort due to simple headache, neuralgia and overindulgence in food, drink or tobacco.—[*D. D. N. J., F. D. C. 141; April 1941.*]

Bromoforbia (Bromophorbia).—Pharmacal Products Company, Easton, Md. Composition: 8½ grains of sodium iodide per fluidounce, whereas label represented the amount as 16 grains; hence adulterated and misbranded. Use not stated.—[*D. D. N. J., F. D. C. 168; April 1941.*]

Cactus Compound Tablets.—Pharmacal Products Company, Easton, Md. Misbranded because it contained active ingredients other than cactus and because nitroglycerin content per tablet was only 1/200 grain whereas 1/100 grain was claimed on the label. Use not stated.—[*D. D. N. J., F. D. C. 168; April 1941.*]

Doctorheat Table Model Infra Red Lamp.—F. C. Herman Company, Chicago. The device was a metal goose-neck table model reflector lamp fitted with a heating unit. Misbranded because falsely represented as to its value in treating arthritis, asthma, boils, bronchitis, painful menstruation, pneumonia and some other conditions.—[*D. D. N. J., F. D. C. 192; April 1941.*]

Domino Brand Antiseptic Rubbing Compound.—Halitosine Company, St. Louis. Composition not reported. Misbranded because falsely represented as an antiseptic rubbing compound, consisting of rubbing alcohol or an equivalent. [*D. D. N. J., F. D. C. 177; April 1941.*]

Dr. Burnham's San-Yak K-L-B Pills.—Lee Chemical Company, Birmingham, Mich. Composition: chiefly plant extractives including cinchona alkaloids, sandalwood and emodin-bearing drugs, with magnesium, calcium and iron salts. Misbranded because labels represented it as a remedy for blood, kidney, liver and bladder disorders, hemorrhoids and pains in the back or joints. Further misbranded because label failed to declare active ingredients.—[*D. D. N. J., F. D. C. 175; April 1941* and *D. D. N. J., F. D. C. 368; March 1942.*]

Dr. Stover's Golden Oil.—Planet Products Company, Orlando, Fla. Composition: essentially mineral oil and oils of turpentine and mustard, with chloroform (0.88 minim per fluidounce), and a coloring material. Misbranded because represented on label as a remedy for pains, colds, swellings, asthma, hay fever and sinus trouble and because label did not bear the common name of each active ingredient or the quantity of chloroform present.—[*D. D. N. J., F. D. C. 176; April 1941.*]

Hill's Nose Drops.—Anacin Company (Wyeth Chemical Company, distributors), Jersey City, N. J. Composition not stated. Misbranded because fasely represented as efficacious for the quick relief of simple or nasal catarrh and tightness of the throat.—[*D. D. N. J., F. D. C. 178; April 1941.*]

Holford's Famous Inhaler.—Holford Company, Minneapolis. Composition: a mixture of plant material including eucalyptus leaves and lavender flowers, saturated with essential oils such as mustard, eucalyptus and camphor. Misbranded because falsely represented on label as an efficacious treatment for catarrh, headaches, asthma, hay fever and some other disorders.—[*D. D. N. J., F. D. C. 179; April 1941.*]

IVC A B D G Capsules.—International Vitamin Corporation, Brooklyn. Adulterated because it contained not more than 25 international units of vitamin B_1, 800 international units of vitamin D and less than 10,000 international units of vitamin A per capsule, instead of respectively 50, 945 and 10,000 as represented.—[*D. D. N. J., F. D. C. 173; April 1941.*]

Jiffy Vaporizer.—Spielman & Company, New York. An electrically heated device to produce steam. Falsely represented as to its efficacy in relieving bronchitis, asthma, hay fever, whooping cough, laryngitis and catarrh and for purifying the air.—[*D. D. N. J., F. D. C. 183; April 1941.*]

Kaz For Colds.—Kaz Manufacturing Company, New York. Composition: essentially a mixture of oils of eucalyptus, peppermint, wintergreen and lavender, with menthol and camphor in a mineral oil base, used in an electric heating device for producing steam. Label falsely represented it as an effective treatment of throat, lung and nasal congestions, including croup, whooping cough, asthma, chest colds and similar complaints.—[*D. D. N. J., F. D. C. 184; April 1941.*]

Laxatonic Cold Tablets.—Pharmacal Products Company, Easton, Md. Composition: 0.42 grain of quinine sulfate per tablet. Hence adulterated and misbranded because claimed to contain ½ grain of quinine sulfate per tablet. Also misbranded because not a laxative tonic as name represented.—[*D. D. N. J., F. D. C. 168; April 1941.*]

Mastercraft Infra-Red Therapeutic Lamps, Type No. 62.—Northern Electric Company, Chicago. A table model reflector lamp fitted with an incandescent bulb. Label falsely represented that the device would counteract aches and pains "with nature's soothing healing rays from the sun" which penetrate deeply into the flesh, stimulate the nerves, rebuild diseased tissues, promote bodily health and vitality and prove effective in the treatment of bladder trouble, bronchitis, eczema, rheumatism, menstrual pains, sciatica and many other disorders.—[*D. D. N. J., F. D. C. 191; April 1941.*]

Medovapo Inhaler.—Med-O-Vapo Company, Minneapolis. Composition: alcohol (57.8 per cent), benzoic acid (1.9 grains per fluidounce), menthol, camphor, thymol, pine oil and water. Falsely represented as a modern inhaling treatment of hay fever, sinus pains, catarrhal congestion and bronchitis.—[*D. D. N. J., F. D. C. 182; April 1941.*]

Nazene Drops for Nose and Throat.—Brunswig Drug Company, Los Angeles. Composition: small amounts of ephedrine, chlorobutanol, menthol and cinnamic aldehyde in a mineral oil base. Misbranded because falsely represented on label as a treatment for superficial inflammatory conditions of the nose and throat.—[*D. D. N. J., F. D. C. 180; April 1941.*]

No. L-11-9 Modern Infra Red Ray Lamp.—Knapp Monarch Company, St. Louis. A table model lamp fitted with a heating element. Falsely represented on label to penetrate deeply under the skin, forming heat units which would cause an excess accumulation of blood and produce beneficial chemical changes, increase nutrition and cause the white corpuscles to destroy any microbes which might be present; and to benefit abscesses, boils, heart diseases, gangrene and many other disorders.—[*D. D. N. J., F. D. C. 193; April 1941.*]

Prak-t-kal Electric Vaporizer—Practical Products Company, New York. A kettle shaped electric vaporizing device. Misbranded because represented on label as a practical road to health and a remedy for asthma, bronchitis, laryngitis and whooping cough.—[*D. D. N. J., F. D. C. 186; April 1941.*]

Premo Halibut Liver Oil Capsules Plain.—Gelatin Products Company, Detroit. Adulterated and misbranded because another fish liver oil had been substituted wholly or in part for plain halibut liver oil. Further misbranded because offered for sale under the name of another drug.—[*D. D. N. J., F. D. C. 174; April 1941.*]

Premo Nasal Drops.—Premo Pharmaceutical Laboratories, New York. Composition not given. Misbranded because falsely represented as a relief of mucous inflammation and nasal catarrh.—[*D. D. N. J., F. D. C. 181; April 1941.*]

Rodale Therapeutic Lamp.—Rodale Manufacturing Company, Emaus, Pa. An incandescent bulb fitted into a reflector attached to a wooden handle. The label falsely represented that this was an effective treatment for colds, headaches, backaches, chest inflammation, rheumatism, lumbago and neuralgia and would "do wonders for the health" and invigorate the tissue.—[*D. D. N. J., F. D. C. 190; April 1941.*]

Rogers Electric Vaporizer.—Rogers Electric Laboratories, Inc, Cleveland. An electric device for producing vapor which passes over cotton saturated with some medicinal agent. Falsely represented as an effective treatment of bronchitis, pneumonia, influenza and asthma.—[*D. D. N. J., F. D. C. 187; April 1941.*]

Relievo Therapeutic Lamps.—Kas-Kel Electric Company, Inc., New York. A table model lamp equipped with an incandescent heating element. Misbranded because represented on label to relieve rheumatism, deep-seated pains, mental and physical fatigue, congestion and some other things. [*D. D. N. J., F. D. C. 194; April 1941.*]

Slumber Ointment.—Nolan Company, Greenville, Pa. Composition: mercuric nitrate (7.96 per cent), calcium and magnesium compounds, turpentine, soap and water, in a fatty acid base. Adulterated and misbranded because it contained more than the 7 per cent of mercuric nitrate represented on the label. Further misbranded because falsely represented as a remedy for eczema, salt rheum, grease or rubber poisoning, boils, dandruff, varicose ulcers, warts and other skin disorders.—[*D. D. N. J., F. D. C. 171; April 1941.*]

Sterno Vaporizer.—S. Sternau & Company, Inc., New York. A device to vaporize water and other liquids. Falsely represented as an effective treatment of coughs, sore throat, bronchitis, hay fever, whooping cough, catarrh, asthma and allied conditions.—[*D. D. N. J., F. D. C. 188; April 1941.*]

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, July 4, page 830.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part I.* Various centers, Sept. 14-16. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written. Part I.* Various centers, Feb. 4. Final date for filing application is Nov. 6. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral. Groups A and B.* Cleveland, Jan. 14-15, 1943. Final date for filing application is Dec. 7. *Written.* Various centers, Nov. 16. Final date for filing application is Oct. 5. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 19. Final date for filing application is Sept. 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 13. *Oral. Part II.* May 1943. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. All Groups.* Chicago, Oct. 8-10. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written.* Chicago, Jan. 9-10. Final date for filing application is Nov. 1. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF PATHOLOGY: *Oral and Written.* Richmond, Va., Nov. 9-10. Final date for filing application is Sept. 1. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Sept. 18. *Oral.* New York, Dec. 5-6. Final date for filing application is Aug. 1. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Oct. 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF SURGERY. *Part I.* Oct. 7. Final date for filing application is Aug. 22. Sec., Dr. J. Stewart Rodman, 225 S Fifteenth St., Philadelphia.

AMERICAN BOARD OF UROLOGY. February 1943 (tentative). Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis.

Wisconsin January Report

The Wisconsin State Board of Medical Examiners reports the written examination for medical licensure held at Madison, Jan. 13-15, 1942. The examination covered 20 subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-six candidates were examined, all of whom passed. Twelve physicians were licensed to practice medicine by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Loyola University School of Medicine		(1941)	1
Northwestern University Medical School		(1926), (1941, 2)	3
University of Chicago, The School of Medicine		(1939)	1
University of Illinois College of Medicine		(1941, 2)	2
Indiana University School of Medicine		(1940)	1
Johns Hopkins University School of Medicine		(1940)	1
Harvard Medical School		(1940, 2)	2
University of Minnesota Medical School		(1931), (1937)	2
Columbia University College of Physicians and Surgeons		(1940)	1
University of Oregon Medical School		(1940, 2)	2
University of Pennsylvania School of Medicine		(1938)	1
Woman's Medical College of Pennsylvania		(1937)	1
Medical College of the State of South Carolina		(1940)	1
Marquette University School of Medicine		(1941, 2)	2
University of Wisconsin Medical School		(1938), (1940, 4)	5

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1930, 2)	Arkansas
Loyola University School of Medicine		(1936)	Missouri
Northwestern University Medical School		(1931), (1933) (1937) Michigan, (1939) Illinois	Penna.,
Rush Medical College		(1937)	Minnesota
The School of Medicine of the Division of the Biological Sciences		(1938)	New York
Johns Hopkins University School of Medicine		(1933)	Maryland
Ohio State University College of Medicine		(1935)	Ohio
University of Wisconsin Medical School		(1939)	New York

Illinois January Report

The Illinois Department of Registration and Education reports the written examination (graduates of foreign schools given also a practical test) Jan. 20-22, 1942. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-five candidates were examined, 55 of whom passed and 20 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Howard University College of Medicine		(1940)	1
Chicago Medical School		(1942, 6)*	6
Loyola University School of Medicine		(1941, 2), (1942, 2)	4
Northwestern University Medical School		(1940), (1941, 12)	13
Rush Medical College		(1940, 4)	4
University of Chicago, The School of Medicine		(1940, 3)	3
University of Illinois College of Medicine		(1941, 8)	8
State University of Iowa College of Medicine		(1940, 2)	2
Louisiana State University School of Medicine		(1940)	1
Harvard Medical School		(1938)	1
University of Michigan Medical School		(1935)	1
Columbia University College of Physicians and Surgeons		(1939)	1
Syracuse University College of Medicine		(1920)	1
Jefferson Medical College of Philadelphia		(1938)	1
University of Toronto Faculty of Medicine		(1938)†	1
Medizinische Fakultät der Universität Wien		(1919)	1
Deutsche Universität Medizinische Fakultät, Prag		(1928)	1
Univerzita Komenského Fakultat Lékárska, Bratislava		(1938)	1
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main		(1920)	1
Universität Rostock Medizinische Fakultät, Rostock		(1911)	1
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Pecs		(1934)	1
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1935)	1

School	FAILED	Year Grad.	Number Failed
Loyola University School of Medicine		(1942)	1
Medical College of Ohio, Cincinnati		(1901)	1
Medizinische Fakultät der Universität Wien		(1922, 2), (1933)	3
Deutsche Universität Medizinische Fakultät, Prag		(1918)	1
Universita Karlova Fakulta Lékařská, Praha		(1927)	1
Université de Paris Faculté de Médecine		(1937)	1
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1923)	1
Georg August-Universität Medizinische Fakultät, Göttingen		(1905)	1
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main		(1921)	1
Philipps-Universität Medizinische Fakultät, Marburg		(1923)	1
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1923), (1935)	2
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1924)	1
Regia Università degli Studi di Padova. Facoltà di Medicina e Chirurgia		(1929)	1
Regia Università di Napoli Facoltà di Medicina e Chirurgia		(1929)	1
Universität Basel Medizinische Fakultät		(1939)	1
Universität Bern Medizinische Fakultät		(1938)	1
Université de Genève Faculté de Médecine		(1938)	1

Twenty-five physicians were successful in the practical test for reciprocity and endorsement applicants held in Chicago, January 22. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1930)	Arkansas
Stanford University School of Medicine		(1940)	California
Loyola University School of Medicine		(1917)	Wisconsin
Northwestern University Medical School		(1930) Mississippi, (1935)† Minnesota, (1937)† Ohio	
Rush Medical College		(1938)†	Texas
The School of Medicine of the Division of the Biological Sciences		(1938)	California
Harvard Medical School		(1939)	Missouri
University of Michigan Medical School		(1937)†	Michigan
University of Minnesota Medical School		(1921)	Minnesota
St. Louis University School of Medicine		(1930)	Missouri
Washington University School of Medicine		(1938), (1940)†	Missouri
Ohio State University College of Medicine		(1938)	Ohio
Jefferson Medical College of Philadelphia		(1934) (1935) Pennsylvania	Minnesota,
Woman's Medical College of Pennsylvania		(1928), (1934),† (1937) Pennsylvania	
Meharry Medical College		(1938)	Tennessee
Baylor University College of Medicine		(1939)	Texas
Marquette University School of Medicine		(1940)	Wisconsin

School	PASSED	Year Grad.	Endorsement of
Albany Medical College		(1936),† (1938)	N. B. M. Ex.

* These applicants received the M.B. degree and will receive the M.D. degree on completion of internship.

† Licenses have not been issued.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dinitrophenol: Blindness Attributed to Use of Drug.—The plaintiffs, husband and wife, filed a complaint against the Stanford University School of Medicine, Stanford University Hospital, Lane Hospital, Board of Trustees of Leland Stanford Junior University and several individuals for damages for loss of the plaintiff wife's eyesight purportedly due to the negligence of the defendants. From a judgment sustaining the defendants' demurrers to the plaintiffs' complaint, the plaintiffs appealed to the district court of appeals, first district, division 1, California.

The complaint was predicated on fraud. It alleged that the defendants were in the business of manufacturing and distributing drugs designed and purporting to cure and relieve human sickness. By means of statements and articles caused by defendants to be printed in newspapers, pamphlets, circulars and medical journals, the complaint continued, the defendants falsely stated and represented in effect that a certain chemical compound, commonly known as dinitrophenol, was a harmless drug which could be taken internally by human beings for the relief and cure of many illnesses and afflictions of the human body, and in particular that it would reduce excessive weight and alleviate obesity without causing physical illness or harm. It was then alleged that, as a matter of fact, the defendants well knew that such drug was dangerous, detrimental, poisonous and deleterious to the human body, was inherently dangerous to human life and limb and was liable to cause blindness. Large quantities of this drug, continued the plaintiffs, were manufactured by the defendants and distributed and dispensed throughout the state of California through the medium of wholesale and retail druggists and physicians. The complaint then alleged that the plaintiff wife having heard, read and believed the various statements said to have been published by the defendants, and relying on such statements and being ignorant of their falsity, purchased and took internally amounts of dinitrophenol for the purpose of reducing overweight and obesity; that she commenced to use the drug on about the 9th of March 1934 and continued taking it internally each and every day until and including the 30th of December 1934, and that by reason of the taking of the drug she became blind.

The defendants contended generally that the complaint did not set forth sufficient facts to entitle the plaintiffs to relief on the ground of fraud. Fraud is never presumed, said the court; it must always be pleaded and established. Furthermore, the complaint should substantially show the representation of a material fact. The falsity thereof, the knowledge of such falsity or the making of a representation without sufficient knowledge, the intent to deceive or induce one to enter into a transaction, the participation of the defendant or defendants accused of the fraud, the belief in the truth of the representations, the reliance thereon and the consequent damages to the party or parties injured are essentials necessary to be specifically alleged or necessarily implied from the facts pleaded.

The court held that the present complaint was insufficient for a number of reasons. It did not allege whether the plaintiff wife took the drug on prescription, on directions, if any, given on the container or on any direction at all. These circumstances, said the court, should be alleged to apprise the defendants of the nature of the charge and to permit them to prepare a defense. The allegation that defendants were the manufacturers of the drug and gave directions for its use may be matters peculiarly within the knowledge of the defendants, but whether plaintiff wife followed such directions is a subject on which the defendants are entitled to be informed. It is material for them to know whether plaintiffs predicate the complaint for damages on the quantity, the dosage or the continuous use of the drug. Furthermore, the court continued, the complaint failed to allege how plaintiff wife, relying on the alleged published false statements and representations of the defendants that the drug was harmless, was induced to use or take the drug when it was alleged in the complaint that "the precise names and titles and exact contents and tenor of said publications" are "now unknown to plaintiff, and" are "now well known to defendants." The complaint failed to disclose whether or not the dinitrophenol advertised was the dinitrophenol manufactured by the defendants, whether or not the advertised dinitrophenol was the "certain chemical compound" which the plaintiff took internally for the purpose of reducing overweight and obesity or whether or not the dinitrophenol used by the plaintiff wife had been manufactured, sold, dispensed or distributed by the defendants. Neither was it clear whether the charge against the defendants was merely that they disseminated in printed matter false statements that the drug dinitrophenol was harmless when they knew it to be dangerous, or whether defendants were also charged with having manufactured and distributed the particular quantities or portions of the drug which the plaintiff wife took.

In conclusion, the court said that the defendants were entitled either to a direct allegation that the dinitrophenol manufactured, sold, dispensed and distributed by them was the particular dinitrophenol taken or allegations from which such fact may be definitely and reasonably ascertained. In the absence of sufficient allegations of causation between the alleged manufacture and distribution of the drug by the defendants and its use, the court of appeals held that no cause of action was stated. Accordingly, the judgment of the trial court sustaining the defendants' demurrers was affirmed.—*Wennerholm v. Stanford University School of Medicine, 113 P. (2d) 736 (Calif., 1941).*

Osteopathy: Right of Blind Osteopath to Obtain License to Practice Minor Surgery and to Use Drugs.—The petitioner was licensed to practice osteopathy in the state of New York in 1919. He was then blind and he has remained blind ever since. His license authorized him to employ osteopathic procedures only, such as manipulation of the bones, manual manipulation, massage and passive exercises. In 1939 an amendment to the New York law was enacted under which an osteopath may obtain the right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biologic products, if he satisfies the board of regents that he has received sufficient instruction and training to entitle him to the additional rights. Petitioner applied to the board for a certificate authorizing him to extend the scope of his practice as provided in the 1939 amendment. The board apparently permitted the petitioner to take an examination but refused to issue the certificate on the ground that the osteopath was blind and could not exercise the additional rights he sought. The supreme court, special term, ordered the board of regents to issue the certificate and the board appealed to the supreme court, appellate division, third department.

The evidence showed that the written examination which the petitioner was permitted to take after applying for the certificate embraced the theory of narcotics, serology and endocrinology. No practical test in these subjects was given nor was any theoretical test given concerning minor surgical procedures. While the petitioner indicated, by the examination which he took, that he had adequate theoretical knowledge in the subjects in which he was examined, there is a great deal of difference, said the court, between possession of theoretical knowledge and the use of this knowledge by actually performing surgery and injecting medical products into the human system. The court pointed out that medical students before being permitted to practice medicine in New York must spend at least four years

in a medical college. During that time they observe many operations performed, thus gaining much knowledge and information from the ability to observe how things are done. This the petitioner could not do because of his blindness.

Anesthetics, the court continued, consist in the administration of such compounds as ether, nitrous oxide and cyclopropane, which are highly inflammable and dangerous in character. Many substances are administered as local anesthetics, usually hypodermically, and the appropriate site in the patient's anatomy must be selected by the person administering them. Furthermore the anesthetist must continuously observe the condition of the patient, since too much anesthesia may be fatal and too little may be ineffective. A blind man, concluded the court, cannot safely administer anesthetics. Regarding antiseptics, the court said that it was familiar with the effects of the overuse of iodine on some skins, the susceptibility of the epidermis of certain human beings to a particular antiseptic. Whether a particular antiseptic may be safely used on a patient depends on the ocular observation of the person administering it.

Under the law the board of regents had discretionary authority, the court said, not to grant the certificate. The law uses the word "may," indicating that even though the applicant passes the examination and meets the other statutory requirements the regents may still exercise a discretion as to whether a certificate should be issued. In this case, the court thought there was no abuse of discretion. The refusal of the board to issue the certificate was therefore affirmed.—*Application of Marks, 27 N. Y. S. (2d) 739 (N. Y., 1941).*

Malpractice: Liability of Dentist for Injury to Patient Under Influence of Nitrous Oxide.—A patient went to the office of the defendant dentist to have two teeth extracted. Nitrous oxide was administered for several seconds and then procaine was injected. While waiting for the procaine to take effect, the defendant attended a patient in an adjoining room. Returning he gave the plaintiff patient another injection of procaine and again left the room, this time for about twenty minutes. When he returned the second time, he extracted the two teeth after administering more nitrous oxide. After the extraction, the defendant again left the room, the patient still being under the influence of the nitrous oxide. Shortly thereafter, and before the defendant returned, the patient fell through a window to the sidewalk 25 feet below and sustained such serious injuries that he did not regain consciousness until about three weeks later. In subsequent suits by the patient and his father the trial court directed verdicts for the defendant, and the plaintiffs appealed to the Supreme Judicial Court of Massachusetts.

Certain evidence that was offered by the plaintiffs through a practicing dentist to show the effect on a patient of the inhalation of nitrous oxide and the difference between its effect and the effects caused by ethyl chloride, which the witness had used for twenty-five years because the latter was in his opinion safer, was excluded by the trial court. The witness, who had not used nitrous oxide for twenty-five years, was not permitted to testify as an expert witness on the ground that he did not have the necessary qualifications. The Supreme Judicial Court did not think the trial court erred in refusing to admit this testimony. Except in rare instances where, as a matter of law, the exclusion of proffered testimony would be unwarranted, the preliminary question of the qualification of a witness called as an expert rests with the trial court. In view of the fact that the proffered witness had not used nitrous oxide for over twenty-five years, the court pointed out, it could not be said that in refusing to admit the testimony there was any abuse of discretion.

The defendant dentist testified at length with respect to the use of nitrous oxide in the extraction of teeth and the effects of its inhalation by patients. He testified in substance that he intended to administer only enough nitrous oxide to bring about a state of analgesia, that he knew if he administered more than was needed to produce such state the patient's reflexes and his nerves would be in such a condition that he would have no control over them and that a dentist must guard against the unexpected conduct of persons coming out of this condition, referred to by the dentist as a "quick drunk." He testified further that there was a nurse at all times in the room with the patient who had been employed in the dental office for about a year. This nurse, however, the dentist testified, did not have any special training and had never attended any school to qualify her as a dental assistant. In the opinion of the appellate court, had the case been submitted to the jury, it could have found that the defendant left the office in which the patient was operated on, after extracting the teeth, and did not return before the patient fell or leaped through the window. The jury could also have found that the patient was in fact rendered unconscious or semiconscious by the nitrous oxide and that he was in that state when the defendant left the room after extracting the teeth. In the opinion of the court, the jury was competent to pass on the question of whether the defendant was negligent in leaving the unconscious or semiconscious patient in the care of a nurse who was without special training. Whether or not the defendant was negligent and whether his negligence bore a causal relation to the patient's injuries presented issues that should have been submitted to the jury. The court, therefore, held in effect that the trial court erred in directing the verdicts for the defendant.—*Langis v. Danforth (two cases), 33 N. E. (2d) 287 (Mass., 1941).*

Workmen's Compensation Acts: Death from Overdose of Narcotics Following Industrial Injury.—On Dec. 6, 1939 the deceased received serious injuries as the result of an accident arising out of and in the course of his employment with the defendant. He was disabled and suffered intense pain from then until December 21, when he was found dead in his bed. Subsequently the claimant filed a petition for compensation on account of the death and obtained an award in her favor from the Florida industrial commission. This award was affirmed by the circuit court, and the defendant and its insurance carrier appealed to the Supreme Court of Florida, Division A.

The record showed that the deceased suffered such pain in the abdominal region that the physician furnished by the employer prescribed a narcotic to alleviate the pain and that the death may have resulted from an overdose of the narcotic. It is clear, said the Supreme Court, that there was a direct causal connection between the injury and the death, even if death followed as the immediate result of taking the narcotic. The taking of the narcotic was not an independent intervening cause but was the result of the injury, and the employer and insurance carrier are liable under the workmen's compensation act. Aside from this, said the Supreme Court, we are not convinced from the record that death was not the direct result of the injury without being superinduced by the taking of the narcotic. There was ample evidence, in the opinion of the court, to cause reasonable men to reach the conclusion that the deceased received more serious internal injuries than had been identified and that, in all probability, death was the direct result of the injuries. The order of the industrial commission was accordingly affirmed. —*City of Lakeland v. Burton, 2 So. (2d) 731 (Fla., 1941).*

Society Proceedings

COMING MEETINGS

National Medical Association, Cleveland, Aug. 17-21. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

Utah State Medical Association, Provo, Aug. 27-29. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Washington State Medical Association, Spokane, Aug. 17-19. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

West Virginia Medical Association, Huntington, July 13-15. Mr. Charles Lively, 1031 Quarrier St., Charleston, Executive Secretary.

Wyoming State Medical Society, Cheyenne, Aug. 16-18. Dr. Marshall C. Keith, Capitol Bldg., Cheyenne, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

32:235-344 (March) 1942

Occurrence and Recovery of Virus of Infantile Paralysis from Sewage. J. R. Paul and J. D. Trask, New Haven, Conn.—p. 235.
Opsonocytophagic Reaction to Whooping Cough Vaccination, with Particular Reference to Effect of Age on Response. A. E. Keller, J. C. Peterson and P. M. Densen, Nashville, Tenn.—p. 240.
Errors in Clinical Statements of Causes of Death. K. Pohlen, Battle Creek, Mich., and H. Emerson, New York.—p. 251.
Relative Toxicity of Certain Antiseptics Containing Soap and Alcohol, with Special Reference to Mouth Washes. H. Welch, Washington, D. C., and C. M. Brewer, Beltsville, Md.—p. 261.
Improved Nonvirulent Rabies Vaccine. L. T. Webster and J. Casals, New York.—p. 268.
Public Health Engineer in Small County Health Unit. H. H. Hasson, Battle Creek, Mich.—p. 271.
Carriers and Abortive Cases in Rural Poliomyelitis Outbreak. A. D. Langmuir, Peekskill, N. Y.—p. 275.
New Methods of Hookworm Disease Investigation and Control. J. Andrews, Atlanta, Ga.—p. 282.
Methods of Production and Control of Normal Human Plasma and Serum. M. V. Veldee, Bethesda, Md.—p. 289.
Statistical Work in Health Department. F. E. Linder, Washington, D. C.—p. 295.
Chorioallantoic Membrane Infection as Diagnostic Test for Smallpox. S. W. Bohls and J. V. Irons, Austin, Texas.—p. 300.
Studies on Syphilis in Eastern Health District of Baltimore City: III. Study of Prevalence of Syphilis Based on Specific Age Groups of an Enumerated Population. E. G. Clark and T. B. Turner, Baltimore —p. 307.

Archives of Otolaryngology, Chicago

35:513-686 (April) 1942

Therapy of Nerve Deafness and Tinnitus Aurium: Use of Large Doses of Thiamine Hydrochloride and Evaluation of Results, with Source of Possible Error in Interpretation of Improvement. G. E. Shambaugh Jr., Chicago, and M. L. Jennes, Waterbury, Conn.—p. 513.
*Chemotherapy in Acute Nondiphtheritic Laryngotracheobronchitis. H. Graebner, New York.—p. 523.
Intracranial Complications of Tonsillar Origin, with Special Reference to Their Incidence and Pathogenesis. H. J. Hara and C. B. Courville, Los Angeles.—p. 530.
Giant Lymph Follicle Hyperplasia of Nasopharynx: Review of Literature; Report of Case. J. C. Peele, H. Kimata, K. Allen and J. Hallaron, New Orleans.—p. 572.
Allergy as Contributing Factor to Biologic Deafness. Chun-Yue Mao, Philadelphia.—p. 582.
*Fusospirochetal Organisms and Tonsillitis: Bismuth Therapy of Tonsillitis. J. F. Lewis, Fayetteville, Ark.—p. 587.
Occupational Deafness: Audiometric Observations on Aural Fatigue and Recovery: Preliminary Report. D. Chamberlain, Chattanooga, Tenn. —p. 595.
Congenital Atresia of Posterior Nares: Report of Two Cases. A. A. Schwartz and H. J. Isaacs, New York.—p. 603.
Further Objections to Accepted Interpretations of Cochlear Mechanics. A. G. Pohlman, Los Angeles.—p. 613.
Specific Vaccine Therapy in Treatment of Sinusitis. M. Solis-Cohen, Philadelphia.—p. 623.
Otitis Media and Mastoiditis in Children: Bacteriologic Studies with Special Reference to Pathogenicity of Staphylococci. E. Neter, F. Neubuerger and M. L. Short, Buffalo.—p. 631.
Tonsils and Adenoids. J. D. Singleton, Dallas, Texas.—p. 653.

Laryngotracheobronchitis.—During 1939 and up to July 1940, 241 patients, 16 (6.5 per cent) of whom died, were admitted to the croup wards of the Willard Parker Hospital. For some patients with a severe type of disease, sulfapyridine or sodium sulfapyridine was used in addition to the general procedure followed in treating 217 similar patients during 1937 and 1938. Of the 17 patients for whom intubation was indicated and chemotherapy was used, 3 died. The 43 patients who underwent tracheotomy were given chemotherapy as a routine measure. The chemotherapeutic agent seemed to have been least effective in these cases, as the mortality was 25.8 per cent. Complicating pneumonia developed in 29 cases with 7 deaths, a mortality of 24 per cent. During 1937 and 1938 when the 217 patients were treated by palliative measures there were 23 deaths, or a mortality of 10.5 per cent. Among the 34 for whom intubation was necessary there were 12 deaths, a mortality of 35.8 per cent. Tracheotomy was necessary for 28, of whom 7 died, a mortality of 25 per cent. Twenty-nine contracted either bronchopneumonia or lobar pneumonia, and of these 12, or 41.3 per cent, died. An analysis of the observations on the patients who died, Graebner concludes, indicates that chemotherapy is of value in suitable cases in which the predominating organism is amenable to the drugs and the physical resistance of the patient has not been too greatly exhausted.

Bismuth Therapy of Tonsillitis.—Bacterial smears of mucopurulent material aspirated from diseased tonsils frequently, Lewis points out, show many fusospirochetal organisms, while smears made from swabs of the same tonsils reveal only a few organisms. He believes that the usual textbook picture of Vincent's angina calling for many organisms in smears from ulcerated and membranous tonsils is too exclusive, as he has encountered many cases of follicular tonsillitis in which the presence of the fusospirochetal organism seemed to be more important than ulceration and membrane formation. Vincent's organisms, able to thrive under anaerobic conditions, are found in considerable numbers in chronically inflamed gingival pockets. They are predominant in smears of aspirated material in many cases of chronic tonsillitis in children. This suggests that these organisms produce chronic inflammation and hypertrophy of the tonsils. Thus the Vincent organism in crypts may produce chronic inflammation and swelling which closes off the mouths of the crypts and creates anaerobic pockets favorable to its growth. The organism can become invasive, especially when a locus minoris resistentiae is presented by trauma, mercury or bismuth intoxication, malnutrition, abnormal dental conditions or primary invasion by some other organism. Gingivitis and tonsillitis are frequently concurrent in children undergoing second dentition, when the element of trauma is at its highest. Fusiform bacilli and spirochetes play an important role in acute, as well as in chronic, tonsillitis. The author frequently encountered cases of acute tonsillitis with more or less evidence of active fusospirochetal infection in the winters of 1938-1939 and 1939-1940, and less frequently in 1940-1941. Forty patients with acute tonsillitis with evidence of tonsillar fusospirochetal infection usually showed prompt improvement when arsenicals or bismuth injections were given. Bismuth was more effective and, whether its effectiveness was due to its streptococcicidal and/or fusospirocheticidal activity, bismuth is highly effective for most types of acute tonsillitis. It was ineffective for pneumococcic nasopharyngitis.

Canadian Medical Association Journal, Montreal

46:307-410 (April) 1942

Shock. P. G. Weil, Montreal.—p. 307.
Roentgenographic Visualization of Placenta, Utilizing the Plastic Filter. C. E. Vaughan, R. T. Weaver and D. L. Adamson, Hamilton, Ont. —p. 314.
New Method of Elongating Short Palates. H. Baxter, Montreal.—p. 322.
Speech Reeducation Following Palatal Reconstruction. Mary Huber, Montreal.—p. 325.
*Genitofemoral Causalgia: New Syndrome. R. K. Magee, Peterborough, Ont.—p. 326.
Role of Intracavitary Pressures in Collapse Therapy for Pulmonary Tuberculosis. A. M. Vineberg and W. E. Kunstler, Montreal.—p. 329.
Treatment of Early Syphilis. A. Marin, Montreal.—p. 334.
*Massive Arsenotherapy in Early Syphilis by Continuous Intravenous Drip Method. B. Usher and A. E. Hill, Montreal.—p. 342.
Preoperative Sedation in Children. K. Borthwick-Leslie, Winnipeg, Man.—p. 345.
*Postanesthetic Complications in Military Hospital. S. M. Campbell and R. A. Gordon.—p. 347.
Indications and Contraindications in Spinal Anesthesia. K. E. Hollis, Toronto.—p. 351.
What is "Colitis"? J. H. Geddes, London, Ont.—p. 354.
Acute Empyema. J. R. Nugent, St. John, N. B.—p. 357.
Shoulder Pain. H. F. Moseley, Montreal.—p. 361.
Role of the Pathologist. W. J. Deadman, Hamilton, Ont.—p. 365.
Cirsoid Aneurysm Affecting Auditory Auricle. A. A. Klass, Winnipeg, Man.—p. 370.

Genitofemoral Causalgia.—Magee describes a heretofore unrecognized syndrome characterized by pain and paresthesia of the genitofemoral nerve. The pain, which usually follows appendectomy, is aggravated by walking and by hyperextension

of the hip. Two of his 7 patients referred the pain to other pathologic processes. In the year since the first case was seen, 7 have been recognized. In 5 cases the nerve was resected and a complete cure was obtained. The author believes that the condition is common and that it is often misdiagnosed as neurosis or malingering.

Arsenotherapy in Early Syphilis.—Thirty-six patients with primary or early secondary syphilis, i. e., within four or five months of the inception of the disease, were treated by Usher and Hill with the continuous intravenous drip of mapharsen. One woman was treated again because of a persistent positive Wassermann reaction at four months and 1 man was treated again for a reinfection. Almost all the patients suffered from nausea, vomiting and pain up the arm; 27 had fever toward the end of the first day and a few a low grade fever which persisted throughout the course of the treatment. Five patients had toxic erythema, 3 had paresthesias of the hands and feet, 1 had purpura of the extremities and 1 encephalopathy associated with convulsions and disorientation. There were no instances of exfoliative dermatitis, renal, hepatic or other parenchymal damage, nitritoid crisis or blood dyscrasias. Many of the patients were transients or members of the merchant marine; 7 followed for a minimum of three months have a negative blood Wassermann reaction, 3 have been lost from observation and the status of the others is uncertain. Those who were negative remained negative, while those who were positive became negative within two months. Eight or ten months may elapse before a complete reversal of the serologic state in those with secondary syphilis takes place.

Postanesthetic Complications.—An analysis by Campbell and Gordon of the anesthesias of 2,094 patients during one year in all the services of a military hospital disclosed that the incidence of pulmonary complications was definitely increased by an active or recent respiratory infection, no matter what anesthetic agent was used. Pulmonary complications following operation on the upper part of the abdomen were decidedly higher than after other types of operation with the same anesthetic agent. Likewise the incidence was higher among patients who had endotracheal intubation than among those who did not. Postanesthetic complications following spinal anesthesia and cyclopropane for the repair of inguinal hernia were not significantly different in the presence of active or recent respiratory infection. In patients with no such history the complication for cyclopropane anesthesia was much less than that for the spinal anesthetic agents. The addition of a supplemental inhalation agent to spinal anesthesia increased the incidence of postanesthetic pulmonary complications.

Illinois Medical Journal, Chicago

81:253-340 (April) 1942

*Kenny Treatment of Infantile Paralysis During Acute Stage. P. Lewin, Chicago.—p. 281.
Recent Advances in Diagnosis and Treatment of Abnormal Blood Conditions. L. R. Limarzi, Chicago.—p. 296.
Basis for Therapy in Intestinal Obstruction. M. E. Lichtenstein, Chicago.—p. 309.
Carcinoma of Rectum. J. P. Nesselrod, J. M. Garner, F. Christopher and W. K. Jennings, Evanston.—p. 316.
Perineal Prostatectomy. H. C. Rolnick, Chicago.—p. 322.
Use of Oxytocic Drugs During Puerperium. A. E. Kanter, R. K. Hausmann and A. H. Klawans, Chicago.—p. 324.
Squint and Amblyopia: Plea for Their Early Treatment. H. Beard, Chicago.—p. 326.
Treatment of Extensive Burns. M. C. Todd, Chicago.—p. 329.

Kenny Treatment.—Lewin states that the Kenny treatment for poliomyelitis is one of the most noteworthy advances in orthopedic surgery. Careful observation of Miss Kenny or her trained personnel in treating patients with infantile paralysis suggests that continuous rigid splinting is not only "on its way out" but that it is "out." According to Miss Kenny there probably is no such entity as paralysis of an individual muscle. If her theory of intercostal muscle spasm is accepted, the use of the respirator in the disease may be harmful. After nearly two years of follow-up study on 54 cases treated in the Minnesota hospitals by Kenny or by her trained assistants, the medical observers state that they have observed complete recovery of the muscles of the trunk, abdomen, back and neck. The frequent residual deformities have not been observed in a definite proportion of cases as they have been in cases treated by other methods. The marvelous aspect of the Kenny treatment is the fact that a child with infantile paralysis can be given the treatment in a farm house—especially during the first seventy-two hours of the illness when the hot fomentations afford their greatest relief from pain and stiffness. Miss Kenny has jarred the medical and allied professions out of their complacency into an immediate offensive attack on the local condition which she has proved exists.

Journal of Bone and Joint Surgery, Boston

44:245-498 (April) 1942. **Partial Index**

Treatment of Fracture Dislocation of Cervical Spine. W. A. Rogers, Boston.—p. 245.
Fractures of Lateral Condyle of Lower End of Humerus with Complications: Simple Technic for Closed Reduction of Capitellar Fracture. M. G. Kini, Madras, South India.—p. 270.
*Histoplasmosis of Knee. J. A. Key and A. M. Large, St. Louis.—p. 281.
Extension Deformities of Cervical Spine. L. T. Brown and J. G. Kuhns, Boston.—p. 329.
Tuberculosis of Flat Bones of Vault of Skull: Study of Forty Cases. C. M. Meng and Y. K. Wu, Peiping, China.—p. 341.
*Osteochondritis Juvenilis of Acetabulum. P. R. Lipscomb, Rochester, Minn., and C. C. Chatterton, St. Paul.—p. 372.
*Prognosis in Bone and Joint Tuberculosis: Analysis of Results of Treatment and Consideration of Factors Which Influence End Result. R. I. Harris and H. S. Coulthard, Toronto, Canada.—p. 382.
Hip Joint Involvement in Gaucher's Disease. A. J. Schein and A. M. Arkin, New York.—p. 396.
*Tocopherols (Vitamin E) in Treatment of Primary Fibrositis. C. L. Steinberg, Rochester, N. Y.—p. 411.
Surgical Treatment of Painful Hips of Adults. R. K. Ghormley and M. B. Coventry, Rochester, Minn.—p. 424.
Severe Osteoporosis (or Osteomalacia) Associated with Long Continued Low Grade Steatorrhea. G. Miyakawa and Genevieve Stearns, Iowa City.—p. 429.
Roentgenographic Study of Acute Osteomyelitis of Fibula Treated Conservatively. R. R. Goldenberg, Paterson, N. J.—p. 447.
"Strain" Thrombosis of Axillary Vein. H. H. Cohen, New York.—p. 452.
Rubber Surface Skin Traction. H. I. Barnard, Denver.—p. 462.

Histoplasmosis of Knee.—As far as Key and Large could determine, none of the cases of histoplasmosis reported in the literature involved joints or muscles as it did in their case, in which sections from the specimen of the knee joint showed the typical Histoplasma capsulatum of Darling. The case closely resembled tuberculosis of the knee joint and was so diagnosed until it was found that the guinea pig inoculation and the tuberculin test were negative. It was then thought to be a low grade infection of unknown origin. The limb was amputated, the sutures were removed on the seventh postoperative day, two days later the patient became stuporous and cyanotic, the neck became rigid, ankle clonus developed, a diagnosis of pneumonia of the right lower lobe complicated by right heart failure and meningismus was made and the patient was placed in an oxygen tent and given sodium sulfathiazole intravenously, but he died the following day. Necropsy was refused, and the true diagnosis was not suspected until the microscopic sections of the synovial tissues of the knee were examined. The authors report their case because they feel that, if Meleney's predictions come true, other cases will appear and that other clinicians may make similar mistakes.

Osteochondritis Juvenilis of Acetabulum.—Lipscomb and Chatterton report what they believe to be the second presentation in the literature of juvenile osteochondritis of the acetabulum. They believe that the acetabulum is involved much more often than is generally recognized, either with the head of the femur or alone. To substantiate this view they report 3 cases in which the acetabular structure was involved without obvious involvement of the neighboring head of the femur and 2 cases in which the acetabulum was involved in conjunction with the femoral head and other centers of ossification. Treatment is conservative and should relieve the strain which results from weight bearing. Healing without deformity took place in 2 cases.

Bone and Joint Tuberculosis.—Harris and Coulthard attempt to determine the present status of the 307 patients with bone and joint tuberculosis treated in the Toronto Hospital between January 1931 and December 1940 and the factors which influence the prognosis. It was possible to follow up 296 cases

for one to ten years. These 296 patients had three hundred and fifty-six lesions of bones, joints and associated structures. When the results obtained are analyzed irrespective of the therapeutic measures adopted, it becomes apparent that several factors influence the prognosis adversely: the presence of multiple tuberculous foci and the presence of organisms other than tubercle bacilli in any of these foci. More than one third of the patients had only one tuberculous focus. The percentage of arrested disease and the ability to return to work of these patients was high, especially those with tuberculosis of the spine (80 per cent) and of the knee (100 per cent). The mortality rate was 13 per cent and was usually due to secondary osseous infection or to nontuberculous disease. A fourth of the patients had additional tuberculosis in other bones and/or in the genitourinary system but not in the lungs. Treatment has to arrest tuberculosis throughout the body, and often more than one operation is required. The incidence of these patients' return to work was much reduced and the mortality rate rose to about 20 per cent because of the appearance of meningitis and of Addison's disease in addition to chronic suppuration and nontuberculous disease. More than 40 per cent of the patients also had pulmonary tuberculosis, the most serious complication. When combined with other skeletal and renal foci the prognosis is much worse than when pulmonary tuberculosis is the only complication; the incidence of arrested disease and of return to work among the latter patients was between 40 and 50 per cent and between 12 and 20 per cent for the former, and the respective mortality rates were 38 and 44 to 80 per cent. The principal causes were miliary tuberculosis, meningitis and pulmonary tuberculosis. Tuberculosis of the spine was arrested in 88 per cent of the patients treated by spine bone graft, but in 26 per cent arrest of the systemic disease was delayed or prevented by tuberculosis elsewhere in the body. The best results were obtained by rest and the control of other tuberculous foci and then by operation to secure bony ankylosis of the affected joint.

Tocopherols in Treatment of Primary Fibrositis.—Various chemical combinations, physical forms and routes of administration of the tocopherols were tried by Steinberg for the treatment of patients with primary fibrositis. From 120 to 240 mg. of a molecular distillate of tocopherol was given daily to 20 patients with primary fibrositis. Definite improvement was observed by all. Forty other similar patients were given 300 mg. of the preparation for one week and then 150 mg. Most of these patients improved after one week of treatment, and all but 5 were completely relieved of their fibrositic symptoms. These 5 patients were relieved from pain, but not completely from generalized stiffness. Nine patients with primary fibrositis were given 334 mg. of mixed tocopherols intramuscularly at weekly intervals for three weeks; all had severe local reactions, 2 had systemic reactions, but all were definitely relieved of their fibrositic symptoms, and the fibrositic nodules of 1 patient disappeared. All of 12 patients given 200 mg. of synthetic alpha tocopherol in corn oil intramuscularly at weekly intervals and observed for two to four months were also definitely relieved. The inunction route was tried in 4; 0.3 cc. of 40 per cent solution of the molecular distillate was rubbed into the skin daily. These patients were observed for two months; they objected to the odor of the drug, and the results were poor. Two salts of the tocopherols were given 22 patients with various muscle disorders. The fibrositis was completely relieved of 9 of 12 patients who received 0.065 Gm. of alpha tocopherol succinate in capsules by mouth three times daily; 1 with secondary fibrositis obtained no relief nor did 2 with psychosomatic rheumatism. Of 10 others with fibrositis receiving 0.065 Gm. of gamma tocopherol palmitate three times daily by mouth 6 were completely relieved and 2 had some relief; 1 with combined sclerosis complicating pernicious anemia and 1 with osteitis deformans had no relief. The results indicate that either the oral or the parenteral route is equally efficacious. The striking similarity between the pathologic changes of primary fibrositis and nutritional muscular dystrophy plus the clinical improvement obtained in both conditions with tocopherols indicate that primary fibrositis is a metabolic disorder concerned with the deprivation of vitamin E.

Journal of Lab. and Clinical Medicine, St. Louis

27:855-982 (April) 1942

Georges Hayem (1841-1935). Camille Dreyfus, Boston.—p. 855.
The Polycyte. E. Ponder, Mineola, N. Y.—p. 866.
Recovery from Experimental Polycythemia. Elizabeth Lowenhaupt, San Francisco.—p. 874.
Studies on Vasodilatation Tests in Peripheral Vascular Disease. A. Gootnick, G. Saland, C. Klein and H. Zurrow, New York.—p. 878.
Primary Amyloidosis of Lungs. S. W. Sappington, J. H. Davie and J. A. Horneff, Philadelphia.—p. 882.
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Androgenic and Estrogenic Substances in Urine of Eunuchoid and Castrate Men: Changes Following Administration of Testosterone Propionate. J. B. Hamilton, R. I. Dorfman and G. R. Hubert, New Haven, Conn.—p. 917.

Kentucky Medical Journal, Bowling Green

40:117-158 (April) 1942

Appendicitis in Kentucky. J. B. Lukins, Louisville.—p. 119
Problem of Abortion. S. S. Parks, Lexington.—p. 122.
Insanity as Disease of Body and Its Medical Treatment. F. Kennedy, New York.—p. 125.
Responsibility of Medical and Dental Professions in This War. S. F. Seeley, Washington, D. C.—p. 129.
Conservative Management of Pelvic Inflammation. D. M. Clardy, Hopkinsville.—p. 134.
Prevalence of Neuroses in General Practice. J. D. Handley, Hodgenville.—p. 138.
Treatment of Biliary Symptoms After Cholecystectomy. S. C. Smith, Ashland.—p. 141.
Nonpenetrating Injuries of Heart. M. M. Weiss, Louisville.—p. 144.
Consultations. W. I. Hume, Louisville.—p. 148.

Maine Medical Association Journal, Portland

33:65-88 (April) 1942

Medical and Psychiatric Problems of Selective Service. D. E. Currier, Cambridge, Mass.—p. 65.
Attempt to Ascertain Clinical Value of Rate of Blood Sedimentation; Based on Study of 500 Unselected Patients. E. R. Blaisdell and K. E. Smith, Portland.—p. 72.
Cancer Control in Main, 1942. M. Warren, Portland, and H. R. Kobes, Augusta.—p. 79.
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Nebraska State Medical Journal, Lincoln

27:117-156 (April) 1942

Reflex Variations of Coronary Flow. N. C. Gilbert, Chicago.—p. 117.
Medical Care of Premature Infants. A. V. Stoesser, Minneapolis, and R. H. Loder, Lincoln.—p. 124.
Carcinoma of Breast. H. H. Davis, Omaha.—p. 130.
Specific Chemotherapy for Cancer. H. E. Eggers, Omaha.—p. 133.
Treatment of Cancer of Bowel. J. D. Bisgard, Omaha.—p. 137.
Bilateral Rupture of Biceps Brachii Lower Tendon. W. R. Hamsa, Omaha.—p. 140.

New England Journal of Medicine, Boston

226:547-588 (April 2) 1942

*Optimal Dosage and Reciprocal Relation of Desoxycorticosterone Acetate and Sodium in Addison's Disease. T. H. McGavack, New York.—p. 547.
Important Etiologic Factor in So-Called "Foot Strain." R. B. Osgood, Boston.—p. 552.
Toxic Effects from Intraperitoneal Use of Sulfanilamide: Report of Two Cases. M. F. Lesses and A. Starr, Boston.—p. 558.
*Teatment of Trichomonal Vaginitis with Acetarsone Tampons. J. V. Meigs, Boston.—p. 562.
Nutritional Deficiencies in Relation to Digestive Tract. C. M. Jones, Boston.—p. 563.

Desoxycorticosterone Acetate and Sodium for Addison's Disease.—During the last two and a half years McGavack treated 6 cases of Addison's disease with desoxycorticosterone acetate, together with regulating the sodium and potassium intake. He concludes that the patient with Addison's disease can be satisfactorily maintained in good health with desoxycorticosterone acetate and the simultaneous regulation of the intake of sodium and potassium and that within certain limits a reciprocal relation exists between the amount of sodium

to be ingested and the dose of desoxycorticosterone acetate necessary to maintain the subject in a state of well being, a slow, steady gain in weight or the maintenance of an attained normal weight, a return and stabilization of a normal blood pressure and the maintenance of normal values for sodium and potassium in the blood and urine and improved dextrose tolerance curves. Patients felt best and showed most nearly normal carbohydrate utilization on 10 to 20 mg. of desoxycorticosterone and sodium daily. Patients receiving less than 5 mg. of desoxycorticosterone daily and more than 9 mg. of sodium daily did not "feel fit," despite the maintenance of normal weight, blood pressure and serum electrolytes.

Acetarsone Tampons for Trichomonas Vaginitis.—Meigs used tampons infiltrated with acetarsone to treat 39 cases of Trichomonas vaginitis. The tampons are made by dusting each with 1½ grains (0.1 Gm.) of acetarsone; in addition a tablet containing ½ grain (0.032 Gm.) of acetarsone, 2 grains (0.13 Gm.) each of dextrose, lactose and boric acid, ½ grain of starch, ¼ grain (0.016 Gm.) of sodium bicarbonate and 4/10 grain (0.025 Gm.) of tartaric acid is placed on top of each. The p_H of the solution of this tablet is approximately 3. Acetarsone powder is first insufflated and then the medicated tampons are used at home every night for the first week and removed in the morning. At the end of a week a warm douche of sodium perborate (1 tablespoon to a quart of warm water) is taken. During the next week the tampons are inserted every other day, and during the following week they are used every third day; the weekly douches are repeated. This is continued until the next menstrual period. The medicated tampons are used throughout the period, but after it the treatment is omitted for a few days and a smear is taken, and if it is positive treatment is repeated. If the smear is negative the patient uses a tampon twice a week, with a sodium perborate douche at the end of the week. If after the next menstruation the vagina is still free from organisms, treatment is stopped. Of the 39 patients treated 19 were permanently cured, 7 were symptomatically relieved, 7 were not sure whether the treatment was beneficial and 6 thought it was not.

226:589-628 (April 9) 1942

Regional Enteritis: Report of Forty-Three Cases. R. Warren and R. H. Miller, Boston.—p. 589.
Colles' Fracture. W. Darrach, New York.—p. 594.
*Pharmacodynamics of Sulfadiazine in Man. H. D. Ratish, N. H. Shackman and J. G. M. Bullowa, New York.—p. 596.
Ununited Hip Fractures. O. J. Hermann, Boston.—p. 601.
Surgery of Autonomic Nervous System: Method of Study, with Particular Reference to Interpretation of Clinical Results. R. H. Smithwick, Boston.—p. 605.

Pharmacodynamics of Sulfadiazine in Man.—The pharmacodynamics of sulfadiazine were studied in 98 men who had infection of the upper part of the respiratory tract or who were convalescing from pneumonia. Ratish and his associates gave the drug orally, intravenously, subcutaneously, intramuscularly and rectally and determined the fate of single oral doses of 2, 3 and 5 Gm. and of repeated doses of 1 Gm. every four to six hours. Sulfadiazine was readily absorbed from the gastrointestinal tract and with it a generally higher concentration was obtained in the blood than with similar doses of sulfapyridine and sulfathiazole. Sulfadiazine disappeared from the blood more slowly than either of the other two drugs. The amount conjugated in the blood was less than that with sulfapyridine or sulfathiazole. The conjugated fraction in blood and urine did not increase with continued administration. About a third of the dose given was conjugated in the urine, although in exceptional cases a much larger proportion may be so excreted. Its rapid urinary excretion may account for the small quantity conjugated in the blood. When both rapid attainment and maintenance of high blood levels are desirable and oral administration is not feasible, the intravenous infusion of sodium sulfadiazine is practical. Sulfadiazine was widely and readily distributed in body fluids. It penetrated well into the pleural and peritoneal cavities. Its concentration in the spinal fluid was usually about two thirds of that in the blood. With initial doses of 2, 3, 4 and 5 Gm. followed by 1 Gm. every six hours the levels obtained were similar to those reached when the drug was given every four hours. The concentration in the blood was independent of the total and the per kilogram of body weight dose. The incidence of toxic reactions was less with sulfadiazine than with sulfapyridine and sulfathiazole. When they did occur they were mild.

Northwest Medicine, Seattle

41:115-148 (April) 1942

Gastrojejunal Ulcer. B. P. Mullen, Seattle.—p. 118.
Tuberculosis of Knee in Adults. H. J. Wyckoff, Seattle.—p. 120.
Sciatica from Aneurysm of Sciatic Artery. J. F. LeCocq, Seattle.—p. 121.
Use of Blood and Fluids in Obstetrics. R. K. Plant, Seattle.—p. 122.
Caliceal Calculosis. A. H. Peacock, Seattle.—p. 123.
Correction of Lop Ears. H. E. Coe, Seattle.—p. 126.
Bile Duct Irrigation. R. D. Forbes, Seattle.—p. 127.
Total Gastrectomy. J. A. Duncan, Seattle.—p. 127.
Three C's of Surgical Healing. E. A. Nixon, Seattle.—p. 129.
Cases from Tumor Clinic. D. V. Trueblood, Seattle.—p. 132.
Agranulocytosis Due to Sulfathiazole: Report of Fatal Case. L. Thompson, Portland, Ore.—p. 133.
Psoriasis Vulgaris: Some Therapeutic Considerations. T. S. Saunders, Portland, Ore.—p. 135.
Infectious Mononucleosis, with Anemia, Skin Rash and Jaundice. T. Carlile and J. M. Blackford, Seattle.—p. 137.

Oklahoma State Medical Assn. Jour., Oklahoma City

35:139-184 (April) 1942

Fever Therapy. P. S. Nagle, Oklahoma City.—p. 139.
Laboratory Findings in Pneumonia and Bronchitis: Report on 100 Cases. W. H. Bailey, Fort Sill.—p. 142.
Obstetric Shock. B. D. Faris, Oklahoma City.—p. 144.
Anuria Following Administration of Sulfadiazine and Sulfapyridine: Case Reports. W. T. Bynum, F. T. Joyce and O. S. Pyle, Chickasha.—p. 145.
Unusual Case History for Diagnosis. D. J. Underwood, Tulsa.—p. 148.

Physiological Reviews, Baltimore

22:125-204 (April) 1942

Blood Brain Barrier. U. Friedemann, Brooklyn.—p. 125.
Cytologic Aspects of Synaptic Function. D. Bodian, Cleveland.—p. 146.
Organic Chemical Industrial Hazards to Health. W. F. von Oettingen, Bethesda, Md.—p. 170.
Chemotherapy of Avian Malaria. E. K. Marshall Jr., Baltimore.—p. 190.

Surgery, Gynecology and Obstetrics, Chicago

74:777-904 (April) 1942

Vascular Tumors of Bone: Pathologic and Clinical Study of Twenty-Seven Cases. A. Thomas, Denver.—p. 777.
*Suppurative Joint Disease and Its Relation to Pyogenic Osteomyelitis: Review of End Results of Sixty-Seven Involved Joints in Fifty-Seven Patients; Modern Chemotherapeusis. J. Blaisdell and P. H. Harmon, Sayre, Pa.—p. 796.
Supplementary and Synergistic Action of Stimulating Drugs on Motility of Human Colon. H. F. Adler, A. J. Atkinson and A. C. Ivy, Chicago.—p. 809.
Amputation of Lower Extremities in Occlusive Arterial Diseases: Ten Year Review. H. B. Macey and W. H. Bickel, Rochester, Minn.—p. 821.
External Biliary Fistulas: Study of Twenty-Three Cases. N. F. Hicken, L. B. White and Q. B. Coray, Salt Lake City.—p. 828.
*Testicular Biopsy: Further Studies in Male Infertility. C. W. Charny and D. R. Meranze, Philadelphia.—p. 836.
Some Modifications on Aseptic Double Valved Tubogastrostomy. J. A. Glassman, Chicago.—p. 843.
*Nine Years' Clinical Experience with Steel Wire as Suture Material. G. H. Pratt, New York.—p. 845.
Study of Effect of Morphine, Atropine and Scopolamine on Bronchi. O. V. Hibma Jr. and A. R. Curreri, Madison, Wis.—p. 851.
Simple Operation for Stabilization of Knee Joint. H. C. Blair, Portland, Ore.—p. 855.
Fracture of Patella Treated by Removal of Loose Fragments and Plastic Repair of Tendon: Study of 554 Cases. J. E. M. Thomson, Lincoln, Neb.—p. 860.
*Complications of Radiotherapy in Cancer of Cervix. M. Cutler, Chicago.—p. 867.
Significance of Venous Circulation About Elbow in Pathomechanics of Volkmann's Contracture. T. Horwitz, Philadelphia.—p. 871.
Reinforcement of Deltoid Ligament for Pronated Flatfoot: Inversion Fasciodesis of Os Calcis. H. Milch, New York.—p. 876.
Volvulus of Cecum: Anatomic Factors in Its Etiology: Report of Case. J. A. Wolfer, L. E. Beaton and B. J. Anson, Chicago.—p. 882.
Hazards of Fire and Explosion of Anesthetic Agents: III. In Presence of Diathermy. B. A. Greene, Brooklyn.—p. 895.

Joint Suppuration, Pyogenic Osteomyelitis.—The data on 57 patients with sixty-seven suppurative joints encountered in two hospitals during a period of eight years analyzed by Blaisdell and Harmon emphasize the need for early and prompt bacteriologic diagnosis by joint aspiration so that specific chemo-

therapy may be instituted immediately. Prolonged application of traction to the involved extremity to minimize ankylosis and the value of specific chemotherapy during the acute stage are stressed. Of the 57 patients 7 died, 25 had chronic osteomyelitis and/or ankylosed joints with draining sinuses, 5 were improved (the wound healed, but occasional discomfort remained) and 20 were cured (2 by amputation). These results are poorer than would be obtained under modern chemotherapy, since it aids in controlling suppuration, allowing elective and reconstructive operations and sterilizing the blood stream if involved. In the acute cases deformity was prevented by fixation in the positions of maximal function. Many patients were not seen until long after the acute onset. These patients, for the most part, had retained deformities which under proper supervision could have been minimized or prevented.

Testicular Biopsy to Determine Fertility.—Charny and Meranze performed ninety-five testicular biopsies to determine the nature of the intrinsic lesion causing reduced fertility. The series includes instances of testicular underdevelopment resulting from a congenital endocrine imbalance and testicular degeneration of a normally developed testis brought about by inflammation, toxic processes or postpuberal endocrine disturbances. These two lesions can be differentiated by the data obtained from testicular biopsy. The differentiation determines the prognosis and type of treatment. The ninety-five biopsies revealed two pathologic changes varying considerably in degree: intratubular, in which the degenerative or developmental lesion was confined to the seminiferous tubules, and peritubular, in which peritubular fibrosis, either inflammatory or replacement, was seen in addition to the intratubular lesion. Sixteen of the biopsies showed normal spermatogenesis, fifty-one showed moderate to severe peritubular fibrosis and twenty-eight showed a normal amount of peritubular connective tissue despite damage to the tubular epithelium. The pathologic changes confined to the tubules varied from simple desquamation of the innermost layer of cells, the spermatids, to more severe degenerative changes in which both the spermatocytes and spermatogonia were involved or, finally, to a stage in which the tubule consisted of merely a single layer of undifferentiated cells apparently incapable of growth and division. The peritubular fibrosis was indicative of either the end stage of an inflammatory process or of a severe degenerative process which produced, in addition to epithelial damage, an infolding and thickening of the membrana propria, a shrinkage of the tubules and subsequent replacement fibrosis. The presence or absence of peritubular fibrosis was a most valuable differentiating finding: fibrosis was not observed in any clinical entity associated with underdeveloped testes. Such testes showed tubules smaller in size than normal and lined by incompletely developed or undifferentiated epithelial elements. On the other hand, the acquired degenerative lesion almost invariably showed some degree of peritubular fibrosis. Exceptions apparently occurred in mild cases of tubular degeneration and in extremely acute instances which did not represent end stages, such as injury from diethylstilbestrol. Such cases illustrate the regenerative potentialities of the testes when the toxic agent is removed or a stimulating remedy is introduced. Testosterone proprionate produced degeneration of the seminiferous tubules in a hypogonad in whom androgen therapy was indicated according to the present concepts. Most men with reduced fertility who are almost routinely treated with some endocrine product present no clinical evidence of endocrine disturbance or endocrinopathy when studied by the available laboratory procedures. Therefore there is no justification for concluding that there is an isolated endocrine dysfunction of the seminiferous tubules. Most of these testicular lesions are degenerative and are usually due to local or distant inflammatory or toxic processes. Since no endocrine imbalance exists, the lesion cannot be expected to respond to endocrine therapy.

Steel Wire as Suture Material.—Pratt implanted some seven hundred and fifty sutures of different materials (no. 1 catgut, chromic no. 1 catgut, silkworm gut, alloy steel wire, silver wire dermal and various types of fishline) in surgically prepared areas in 125 cases to learn the reaction to these materials. Macroscopic, bacteriologic and at times pathologic observations were made at intervals of five, seven, ten and fourteen days. Steel wire sutures showed the least tissue reaction. For the last eight years the author has used steel wire exclusively for retention and cutaneous sutures with success in all abdominal and other wounds. It has been buried in the closure of fascia in inguinal and all ventral or incisional hernias. It has been particularly successful in the presence of sepsis and its efficiency has permitted primary closures in appendicitis with peritonitis, in colostomies after the first stage of the Mikulicz operation and in fistulas. It has replaced all other sutures in plastic operations.

Complications of Radiotherapy in Cancer of Cervix.—Cutler divides complications of cervical radium and roentgen therapy for cancer into the avoidable, which result from incorrect irradiation, and unavoidable, which occur in spite of apparently correct irradiation. To eliminate avoidable complications the basic principles of radiation therapy must be understood. An exactly similar treatment is not suitable for all cases, but certain generalizations can be applied to certain groups of cases. The radiation treatment of cervical cancer is intracavitary and extracavitary. As a rule the two procedures are combined, or one or the other method may be used exclusively. Occlusion of the cervical canal by cancer renders intracavitary irradiation difficult and sometimes impossible. The danger of perforation in an effort to locate the cervical canal can be avoided by initiating treatment with external and vaginal radiation which will cause the lesion to regress and will diminish or eliminate infection—the most important of all complications. Other complications, most of which are avoidable, are early injury to the cutaneous and subcutaneous tissue and edema. Epidermite can be avoided by protracting the total treatment to five or six weeks. Edema indicates that the normal tissue cannot tolerate the intensity of the radiation administered. Difficulties can be eliminated by avoiding the single massive dose. Injury to the bladder is uncommon if treatment is not faulty. The proximity of the rectum to the radium foci placed against the cervical lesion exposes it to possible radiation injuries. The first and mildest reaction of the rectal mucosa to irradiation consists of a watery diarrhea without abdominal pain. It indicates that the level of tolerance has been reached. This reaction requires that the size of the skin port be reduced. If the reaction becomes more severe, irradiation is too intense and the daily dose must be reduced, the size of the field diminished or treatment discontinued for several days or longer. Late sclerosis of the pelvic tissue may occur years after intensive irradiation. Pyometra with periuterine edema and diffuse parametrial inflammation may simulate a local recurrence. Mild palliative irradiation was given several patients for suspected late parametrial recurrence and the patients were discharged with an apparently hopeless prognosis, but several years later information was received that these patients were alive and well. There can be little doubt that these were examples of pelvic sclerosis. For postradiation intestinal obstruction, a rare but important result of benign stricture of the intestine, laparotomy is warranted. Activation of latent hemolytic streptococci is a real danger and is associated with 1 to 2 per cent mortality. Since the advent of the sulfonamides, reports have appeared in the literature indicating that they are valuable in treating infections.

Tennessee State Medical Assn. Journal, Nashville

35:123-168 (April) 1942

Present Day Management of Pneumonia. C. P. Wofford, Johnson City.—p. 123.
Conduct of Normal Labor and Routine Employment of Episiotomy and Prophylactic Low Forceps in Primipara. R. C. Webb, Bemis.—p. 127.
Tennessee Pneumonia Control Program: Report for Fiscal Year 1940 to 1941. W. C. Williams, C. B. Tucker and Ruth R. Puffer, Nashville.—p. 133.
Regional Enteritis. C. C. Trabue, Nashville.—p. 136.
Unusual Case of Intestinal Obstruction. E. L. Rippy, Nashville.—p. 140.
Investigation of Psychologic Effects of Sodium Bromide. L. S. Trowbridge, M. Moore and M. G. Gray, Boston.—p. 142.
Total versus Subtotal Hysterectomy in Benign Conditions of Uterus. J. C. Morris, Knoxville.—p. 146.
Acute Inversion of Uterus with Prolapse: Case Report. J. P. Long Jr., Memphis.—p. 150.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

17:1-64 (March) 1942

Anemia in Nephritis. P. MacArthur.—p. 1.
Further Investigation of Breast Feeding: Study of 1,000 Mothers. Margaret Robinson.—p. 23.
Infantile Muscular Atrophy of Spinal Origin: Report of Two Cases. J. G. Macleod and R. M. Macdonald.—p. 30.
Growth of Lung in Healthy and Sick Infants. S. Engel.—p. 41.
*Fourth Type of Erythroblastosis Fetalis Showing Hepatic Cirrhosis in Macerated Fetus: Report of Three Cases. J. L. Henderson.—p. 49.

Fourth Type of Erythroblastosis Fetalis.—Three cases of a fourth type of erythroblastosis fetalis, not described previously, in which hydramnios is common and intrauterine death occurs some time before delivery, are reported by Henderson. Fetuses of this type show little or no edema, are severely macerated and have a diffuse hepatic cirrhosis and splenomegaly. The pale pink placenta is greatly enlarged. The pronounced hepatic cirrhosis proves that erythroblastosis may have a long intrauterine course. This type of the disease bears a close superficial resemblance to congenital syphilis, but close examination of the fetus and placenta renders differentiation easy. Fetal and neonatal erythroblastosis is not generally recognized. The more severe types are still usually regarded as congenital syphilis, and the unfortunate mothers are condemned as syphilitic in spite of negative serologic reactions. The relative frequency of this type of erythroblastosis is difficult to determine, as the affected fetuses are often not examined. It may be more common than either hydrops fetalis or anemia hemolytica.

Journal of Hygiene, London

42:1-102 (Jan.) 1942

*Administration of Vitamin C in a Large Institution and Its Effect on General Health and Resistance to Infection. A. J. Glazebrook and S. Thomson.—p. 1.
*Sulfonamide Compounds and Acute Rheumatism. A. J. Glazebrook and S. Thomson.—p. 20.
Ecology and Significance of Different Types of Coliform Bacteria Found in Water: Review of Literature. C. B. Taylor.—p. 23.
Further Studies of Incubation at 44 C. as Test for "Fecal Coli." H. P. Sherwood and L. F. L. Clegg.—p. 45.
Eijkman Test for Fecal Coli in Bacteriologic Examination of Water Supplies: Survey and Discussion of Experimental Work from 1929 to Present Day with Study of 104 Water Samples and 602 Cultures. C. G. Batty-Smith.—p. 55.
Small Outbreak of Diarrhea Associated with Paracolon Bacillus. A. J. Rhodes.—p. 99.

Effect of Vitamin C on Health.—Glazebrook and Thomson discovered a pronounced difference between the degree of vitamin C saturation of students 15 to 20 years of age in a large training school and the teaching staff. The students were given a high calory diet subjected to prolonged heating, which resulted in a reduction of the total daily vitamin C intake to a level of 10 to 15 mg. per person. A daily addition of 50 mg. of ascorbic acid per person was required to maintain an optimal excretion level. Better distribution and cooking of the food might have achieved the result. The daily potato ration alone, allowing for normal cooking losses, should have supplied at least 25 mg. of vitamin C. Some vitamin loss is unavoidable when food is cooked in a central kitchen for large groups of persons. Normally this can be easily counteracted by supplying uncooked fresh or canned food. The dietary of the teaching staff included the supply of fresh fruit at each of the main meals. It was prepared in separate kitchens and escaped overcooking. Nevertheless, 25 per cent of the staff were "deficient" in vitamin C, in spite of their adequate intake. Approximately 4,000 mg. of vitamin C was required to produce tissue saturation in the youths. A record of the incidence of infectious diseases revealed that the incidence of the common cold and of tonsillitis was the same among the general group and a group given vitamin C, that the average duration of illness due to the common cold was the same in the two groups and that rheumatic fever and pneumonia occurred among the general students but not among the special group given vitamin C.

Sulfonamide Compounds and Acute Rheumatism.—In an institution for boys during an epidemic of tonsillitis (2,000 cases) and acute rheumatism (115 cases), every fourth patient admitted to the wards with tonsillitis was treated by Glazebrook and Thomson with 15 to 20 Gm. of sulfanilamide over a period of four or five days. Of 16 cases of acute rheumatism observed for six months, 4 occurred in the group whose preceding tonsillitis had been treated with the drug and 12 occurred in the group whose preceding attack was not so treated. Four of the patients in the control group gave a history of a previous attack of acute rheumatism. Many hemolytic streptococci were cultured from throat swabs of 4 patients of the test group and from 6 of the control group during the attack of tonsillitis. Two cases of otitis media and 1 of streptococcic pneumonia developed. These were not in the controlled experiment but sulfonamide therapy was administered. Rheumatism developed in these 3 patients as a complication.

Lancet, London

1:281-312 (March 7) 1942

Continuous Method of Drying Plasma and Serum. J. F. Wilkinson, K. Bullock and W. Cowen.—p. 281.
*Mental Reactions to Air Raids. H. Wilson.—p. 284.
Neurogenic Bladder: Combined Tidal Irrigator and Cystometer. O. W. Stewart.—p. 287.
Sulfonamide Compounds in Feces. F. Hawking.—p. 290.
*Meningococcic Endocarditis. J. G. Cutts, G. Krafft and P. H. Willcox. —p. 292.
Hereditary Tendency to Hernia. P. Evans.—p. 293.

Mental Reactions to Air Raids.—Psychiatric casualties following aerial bombardment have been less than expected. Wilson reports that of 697 civilian patients brought to the first aid post 134 were suffering from acute emotional disturbance, hysterical paraplegia and stupor due to fright and anxiety. All left the hospital within twenty-four hours and only 6 returned. They were all told that their reaction was due to fear, which is shared by all persons, and that it was important that they should return to their normal work and resist the temptation to exaggerate the experiences through which they had passed. The psychopathic traits of 63 patients suffering from psychiatric symptoms due to air raid stress were two and a half times as frequent as those of 102 nonservice normal patients taken at random from the surgical outpatient department of the same emergency medical service hospital. The controls were far more conscious of the fear excited by aerial bombardment than the psychiatric patients. Shelter phobia was present in 15 of the 102 controls. The admission and acceptance of fear is a safeguard against breakdown under acute stress. Total denial of fear is a poor prognostic sign. The anxiety that requires attention at the first aid post may be aided by dispelling fear by reassuring the outpatients that their reaction is natural. For conversion symptoms—dyspepsias, inframammary pain and headaches—it is probably important to convince these patients at the first session of the obvious connection between the symptom and the acute danger or terror. When any service must recruit persons with anxieties, reasonable timidity and anxiety should be allowed if it is associated with those opportunities of corporate responsibility and wholesome competition which strengthen individual morale. To prevent hysteria, civilian defense workers must have the capacity for arduous work.

Meningococcic Endocarditis.—A case of meningococcic endocarditis that responded to treatment with the sulfonamides is reported by Cutts and his collaborators. In the nine months that the patient was ill he received 90 Gm. of sulfanilamide, 130 Gm. of sulfapyridine and 560 Gm. of sulfathiazole. The drugs controlled the daily intermittent fever, which rose to 105 F. Each time the sulfonamides were withdrawn it again rose, and the recrudescences indicate the lethal effect of the drugs on all circulating organisms and their failure to overcome the focus of origin on the heart valves. The sulfonamides were given with some anxiety lest renal complications ensue. Sulfapyridine had the most depressing effect on the patient, but sulfathiazole did not upset him and he took this drug continuously for ten weeks without a complaint.

1:313-342 (March 14) 1942

Cardiac Ischemia. J. W. Reid.—p. 313.
Phosgene Poisoning: Report of Two Cases. J. P. Steel.—p. 316.
Hypoprothrombinemia Produced by Methylene-Bis-(Hydroxycoumarin): Its Use in Thrombosis. J. Lehmann.—p. 318.
*Digestibility of National Wheatmeal. H. A. Krebs and K. Mellanby. —p. 319.
Tellurite Medium in Diagnosis of Dysentery. J. C. S. Thomas and W. A. Hulme.—p. 321.
*Gastric Disorders in the Army. J. M. Smellie.—p. 322.

Digestibility of National Wheatmeal.—Krebs and Mellanby determined the digestibility of the national wheatmeal or white flour of 75 per cent extraction in 6 adult male volunteers, who consumed 480 to 700 Gm. of bread made from these flours. The dry weight and nitrogen content of the feces were determined. On the average 94 per cent of the dry matter and 80 per cent of the nitrogen of national wheatmeal were digested. In the case of white flour of 75 per cent extraction approximately 97 per cent of dry matter and 91 per cent of the nitrogen were digested. The views put forward by Wright against raising the extraction of wheat to 85 per cent are not substantiated by the new data. The difference in the digestibility of the two flours is much smaller than Wright assumed.

Gastric Disorders in the Army.—According to Smellie, from Nov. 1, 1940 to Oct. 31, 1941 1,686 cases were admitted to the medical division, and indigestion was the leading complaint of 247, 131 of whom had definite organic gastric or duodenal disease and were invalided from the service as permanently unfit. The remaining 116, after investigation and a short course of treatment, were returned to duty. Thus organic dyspepsia was present in 7.7 per cent of the total medical cases. When a diagnosis of ulcer has been established in a soldier he should be invalided from the army and immediately returned to civilian life, where rest, diet and tranquillity of mind are possible. Before enlistment these patients were leading useful lives in the service of their country and should be returned to such service. In the army they remain a burden to themselves and to others. So far as possible they should be investigated as outpatients. The segregation of soldiers suffering from dyspepsia is detrimental to their interests, for such advantages as accrue from organized management far outweigh the adverse reactions on the individual. Segregation makes symptoms spread and the return of the soldier with a mild, simple and functional disorder to duty much more difficult; they think they are being victimized.

Medical Journal of Australia, Sydney

1:185-214 (Feb. 14) 1942

*Value of Hippuric Acid Test and Takata-Ara Reaction in Investigation of Hepatic Deficiency. Margaret Henderson and B. Splatt.—p. 185.
Investigation of Hepatic Function in Thyrotoxicosis. F. H. Mills.—p. 195.

1:215-244 (Feb. 21) 1942

Ancillary Sciences and Neurosurgery. H. R. Dew.—p. 215.
Measurement of Cardiac Output: Investigation into Acetylene Method. M. Morrissey.—p. 221.
Antileukocytic Sheep Serum as Sensitizing Agent in Chronic Myeloid Leukemia Refractory to Deep X-Ray Therapy. J. B. Thiersch.—p. 225.

Tests of Hepatic Deficiency.—The effectiveness of the hippuric acid excretion as a test of hepatic function was determined by Henderson and Splatt on 89 patients with hepatic disease, 86 with various other disorders and 25 normal adults or patients convalescent from minor surgical conditions. The results were compared with the Takata-Ara reaction in 143 patients with disease of the biliary tract and in 50 normal subjects. In no case was there any grave discrepancy between the results of the hippuric acid excretion test and the operative observations or the necropsy. The test is not reliable when the kidneys fail to excrete nitrogenous metabolites; but this difficulty seldom arises in practice, and furthermore in doubtful cases the estimation of the blood urea content and of the urea clearance or concentration would detect such errors. Besides lowered function of hepatic disease and congestive heart failure the test revealed impaired function in certain conditions in which toxic changes are widespread, as in pulmonary tuberculosis, pernicious anemia and rheumatoid arthritis. As with the hippuric acid test the liver is called on to make an effort well beyond the normal physiologic requirements, the test is comparable to the urea clearance and concentration tests. The hippuric acid excretion test is purely a test of function, and any diagnostic aid that it gives is incidental. As an aid to treatment and prognosis the test should find its widest application. A comparison of the Takata-Ara and hippuric acid tests shows that the Takata-Ara test in 8 of 29 patients with hepatic disease was strongly positive, in 7 it was moderately positive and in 14 it was weakly positive or absent. The discrepancy between the results of this test and that of the hepatic function was even more apparent in patients with disease of the gallbladder and ducts in which only one out of fourteen tests produced a significant reaction, even in the presence of a considerably diminished hepatic function. The Takata-Ara test was not specific for cirrhosis of the liver or parenchymatous hepatic disease. The reaction was frequently not obtained in early cases. The test was useful in differentiating parenchymatous and obstructive jaundice. In 15 of 20 cases of parenchymatous disease strong or moderate reactions were obtained, whereas in only 2 of 14 cases of obstructive jaundice were moderate reactions obtained. Therefore it appears that the Takata-Ara test alone is unreliable as a test of hepatic function or as diagnostic of hepatic disease.

1:245-274 (Feb. 28) 1942

*Some Pharmacologic Properties of Serum, with Special Reference to Its Use as Blood Substitute. G. Reid and Marjorie Bick.—p. 245.
Traumatic Shock and Concussion. J. W. Tomb.—p. 250.
Tuberculous Lesions Found at 1,500 Australian Autopsies. J. B. Cleland. —p. 256.

Pharmacologic Properties of Serum.—Reid and Bick investigated the origin of the pharmacologic properties present in serum, the means of determining their presence and the method of preparing serum which would contain a minimal amount of them. The presence of a smooth muscle stimulating and vasoconstrictor substance (or substances) in serum prepared by the clotting of whole blood was regularly demonstrable. Plasma or whole blood did not possess these properties. The activity of serum depended on the number of platelets present in the plasma at the time of clotting. For instance, serum prepared from plasma centrifuged at high speed was devoid or almost devoid of activity, whereas that prepared from plasma prepared by the gravity method was nearly as active as that from whole blood. That the platelets are the source of the muscle stimulating substance was further confirmed by the preparation of platelet extracts whose activity was quantitatively equal to or greater than that of serum made from the original platelet-containing plasma. Evidently the active substance is preformed in the platelets and its liberation is incidental to the clotting process. Serum which had been boiled still retained its muscle stimulating and vasoconstrictor action. Serum could be freed of the substance by dialysis against distilled water through "cellophane" membranes. Thus the active substance is not protein in nature. Serum stored at room temperature or in a refrigerator at 0 to 2 C. retained its muscle stimulating and vasoconstrictor action without appreciable reduction in activity for at least three months. The drying of serum by the method of Flosdorf and Mudd was without effect on the activity. The importance of the pharmacologic properties of serum must be determined clinically. So pronounced sometimes was the reaction in cats after even small doses of serum that if man behaved in an analogous fashion the intravenous use of human serum would certainly be contraindicated. However, there is no evidence that man does react in such a manner. It is difficult to assess the inferiority of serum to other blood substitutes in relation to the pharmacologically active substance that it may contain, because many reports do not state how the serum was prepared and that pyrogens were excluded. It is perhaps significant that the reactions following its use have been mainly febrile and do not differ from those that sometimes occur with plasma or whole fresh or stored blood. It is difficult to see how the muscle stimulating substance can be responsible for such reactions. There is no evidence that these pharmacologic properties are responsible for serum reactions, though it is theoretically possible that they may be important in producing circulatory reactions when a large dose is given to a susceptible subject.

Cardiologia, Basel

5:189-332 (Nos. 4/5) 1941

Investigation on Comparative Anatomy and Experimental Pathology of Upper Connections of Bundle of His-Tawara. I. Mahaim and M. R. Winston.—p. 189.
Electrocardiogram in the Bronchial Asthma Paroxysm. F. Mainzer and M. Krause.—p. 261.
*Contribution to Study of Arterial Hypertension in Its Relations to Hypothalamohypophysial System. A. van Bogaert and Fr. van Baarle.—p. 275.
Does the Heart Work Like a Pressure Pump or Like a Hydraulic Ram? P. Hahn.—p. 308.
Some Types of Electrocardiograms That Apparently Are Related to Paroxysmal Tachycardia. R. F. Öhnell.—p. 321.
*Aspects of Paroxysmal Tachycardia: Two Families in Which Tendency to "Heart Attacks" and to Certain Electrocardiographic Changes Are Frequent. R. F. Öhnell.—p. 326.

Arterial Hypertension, Hypothalamic and Hypophysial Systems.—Van Bogaert and van Baarle point out that in some cases of essential hypertension there exist diverse sympathetic signs which resemble those produced by experimental stimulation of the hypothalamus in dogs. The authors explored the possible role of hypophysial hyperactivity or of normal hypophysial secretion on the stimulation of the hypothalamic centers and tracts. As a result of a critical study of signs of hypophysial hyperactivity in a case of essential hypertension, the authors have arrived at the following conclusions: Liberation of the encephalobulbar sympathetic pressure centers causes, on the one hand, arterial hypertension and, on the other, excessive secretion of the hypophysial hormones. Numerous animal experiments enabled the authors to prove this hypothesis. The presence of hypophysial hormones in larger than normal quantities in the body fluids does not permit the conclusion that a causal connection exists between this hypophysial secretion and the increased blood pressure, since both are independent sequels of an excitation of the sympathetic encephalobulbar centers, among them those of the hypothalamus.

Paroxysmal Tachycardia: Familial Occurrence.—Öhnell reports observations on two families in which there existed a tendency to heart attacks. In the first family 6 siblings varying in ages between 2 and 16 have histories of heart attacks. These were characterized by changes in frequency and in rhythm, by sensory symptoms in the cardiac area and by short periods in which consciousness is almost lost. Electrocardiograms of the father and of 1 of the children presented knotting at the end of the QRS complex. The father had attacks of tachycardia and of bradycardia. These were frequently followed by polyuria. Of his 11 siblings 5 had had heart attacks for several years. His mother, grandmother, 2 cousins and 1 nephew likewise had attacks of heart symptoms. The second family comprised 12 siblings of the ages between 30 and 49, of whom 2 had died early. The oldest had the Wolff-Parkinson-White syndrome; 2 had attacks of paroxysmal tachycardia and 1 of these had auricular extrasystoles; 1 showed knotting in the first lead and a flat termination of the QRS complex in the chest lead; 1 had heart attacks of changing character: pains, frequency changes, polyuria and occasionally nearly fainting; the electrocardiogram showed in leads 2 and 3 knotting or flat decline in QRS; another 1 had since childhood attacks of paroxysmal tachycardia. A familial predisposition to cardiac symptoms is apparent. The question arises whether the concurrence is accidental or whether it is a hereditary polymorphic disease entity. The author considers the latter possibility as most probable and concludes that paroxysmal tachycardia apparently may be hereditary.

Arch. d. Hosp. de Niños R. del Rio, Santiago de Chile

10:81-148 (June-Sept.) 1941. **Partial Index**

*Three Cases of Stenosis of Splenic Vein. L. Cid Rojas and A. Wiederhold.—p. 83.
Nodal Paroxystic Tachycardia. G. Duffau O.—p. 114.
Amebic Rectitis: Secondary Anemia. V. de la Maza S.—p. 133.
Cured Pneumococcic Meningitis. C. Carrasco H.—p. 137.

Stenosis of Splenic Vein.—According to Cid Rojas and Wiederhold, stenosis of the splenic vein involves differentiation from the splenomegalies of infancy. It is a typical clinical entity which is characterized by splenomegaly, gastrointestinal hemorrhages and secondary anemia. These symptoms can be explained in the following manner: The obstruction in the splenic vein causes a venous stasis in the spleen with considerable tumefaction of this organ; a collateral circulation develops in the anastomosis with the gastric veins and in the veins of the splenic capsule and those running to the diaphragm. These anastomoses dilate more and more and in turn they become thrombosed. The result is esophageal and gastric varices which rupture and give rise to hematemesis. The authors mention some of the terms applied to this disorder in the literature: splenoportal thrombosis; thrombosis of the splenic vein, portosplenic thrombosis and thrombophlebitis; thrombophlebitic splenic tumor; splenic phlebostenosis, splenic pylestenosis or splenic pylephlebostenosis. The authors regard the last term as the most suitable. They report 3 cases of stenosis of the splenic vein. Among general causes of the condition are cachexia (tuberculosis, cancer, brucellosis), general infections (syphilis, typhoid, influenza, puerperal fever and dysentery) and diseases of the blood (leukemia and polycythemia). As local causes are mentioned pathologic processes of the adjacent areas (appendicitis, ulcer, splenitis and cholecystitis), hepatic lesions, tumors of the stomach, pancreas and duodenum, retroperitoneal lymph nodes, traumatisms of the abdomen, infection of the umbilical vein in children and gastrointestinal disturbances. The duration varies from a few days to years. The prognosis is unfavorable. The symptom on which the diagnosis is based is the combination of splenomegaly with hematemesis. The treatment in the presence of gastrointestinal hemorrhages consists of blood transfusions. Relapsing hemorrhages and painful splenic tumor have been treated by splenectomy, but this intervention is contraindicated in cases of suspected involvement of the portal vein. In children splenectomy has been known to produce favorable results. It can be considered only as a palliative treatment.

Archivos de Medicina Infantil, Havana

11:1-46 (Jan.-Feb.-March) 1942. **Partial Index**

*Diffuse Calcinosis in Infant: Case. B. Sánchez Santiago and R. Pereiras.—p. 1.

Diffuse Calcinosis in Infant.—Sánchez Santiago and Pereiras report a case in which the first symptoms of diffuse calcinosis were manifested at the age of 5 months. The symptoms were pain in the lumbar region, diffuse edema and nodules on the thorax and limbs. At 14 months the limbs were spastic and the seat of hard nodules. Diffuse calcinosis was diagnosed by roentgen examination and from a biopsy of one of the nodules on the limbs.

Archivos de Pediatría del Uruguay, Montevideo

13:1-64 (Jan.) 1942. **Partial Index**

Role of Mother in Hospitalization of Infants. J. Bonaba and M. L. Saldun de Rodriguez.—p. 9.
Erythema Infectiosum or Fifth Disease. A. C. Pisano.—p. 19.
Relations Between Fecundity and Lacteal Secretion. M. A. Jaureguy.—p. 25.
Diarrhea in the Course of Measles. E. Peluffo and P. L. Aleppo.—p. 31.
*Sulfonamide Derivatives for Intraperitoneal Injection in Children. V. Zerbino and A. Norbis.—p. 37.

Sulfonamide Derivatives by Intraperitoneal Injection.—Zerbino and Norbis confirm the rapidity of absorption of the sulfonamide derivatives by the peritoneal serosa. In a child of 14 months with febrile respiratory catarrh, diarrhea, repeated vomiting, otitis and pyuria, dietetic treatment proved ineffective and dehydration and acidosis developed with loss of much weight. Sulfathiazole treatment by mouth was made impossible by the continuous vomiting. Two tablets of 0.5 Gm. each were dissolved in 10 cc. of isotonic solution of sodium chloride brought to the boiling point, left to cool and then injected into the abdominal cavity. The dose was repeated in the afternoon and for two more days without any sign of intolerance. The improvement was rapid: fever, vomiting and diarrhea disappeared and the appetite improved. In 2 infants of the ages 2 and 8 months with meningitis it was demonstrated that the sulfonamide derivative administered by the peritoneal route rapidly passed into the cerebrospinal fluid. The authors conclude that the intraperitoneal administration of sulfonamide derivatives in children will not remain an extraordinary measure but will become the most effective technic in many grave disorders. They stress the following advantages: 1. The technic is harmless and well tolerated. 2. It insures rapid absorption and will be particularly valuable in urgent cases. 3. It

apparently permits the best diffusion in the cerebrospinal fluid and is therefore indicated in meningitis. 4. It makes possible administration of large amounts at one time when intensive treatment is necessary.

Revista Médica del Hospital General, Mexico, D. F.

4:723-780 (Nov. 15) 1941. **Partial Index**

*Antisuppurating Effect of Red Rays. J. Erdely.—p. 723.

Antisuppurating Effect of Red Rays.—Erdely protected the area of smallpox vaccination in infants and children with a shield of two layers of red transparent material. The inner layer is loosely attached to the external one, which has some perforations for ventilation. Rays of natural light pass through the perforations and are filtered through the inner layer of red material allowing only red rays to pass. This shield prevents inflammation, fever and suppuration. Vaccination results in the formation of a serous vesicle. General reactions do not take place. When the shield is applied after suppuration has formed the local and general reactions are diminished but are not prevented. The author believes that the inflammatory reactions of vaccination and suppuration are due to hypersensitivity of the skin to ultraviolet rays, whereas red rays have the effect of preventing suppuration. The immunizing effect of vaccination without suppuration is the same as that of vaccination with pustules.

Archiv für Dermatologie und Syphilis, Berlin

181:593-794 (Feb. 20) 1941

Pathogenesis of Eczema. K. Halter.—p. 593.
*Lymphogranulomatosis of Skin. S. Tappeiner.—p. 720.
*Chemotherapy of Erysipelas. W. Volavsek.—p. 761.
Relation Between Skin Tuberculosis and General Miliary Tuberculosis; Kutschera von Aichbergen Method of Inoculation with Cutaneous Tuberculosis in Therapy of Pulmonary Tuberculosis. K.-W. Kalkoff. —p. 770.
Multiple Hautnekrosen bei Thrombangiitis Obliterans. W. Köhlmeier. —p. 783.

Lymphogranulomatosis of Skin.—Tappeiner states that the isolation of lymphogranulomatosis from the group of disorders designated by the collective term pseudoleukemia was accomplished by the Viennese school of pathologists and dermatologists, particularly Paltauf and Sternberg. The disease is still sometimes erroneously referred to as Hodgkin's disease. More than a hundred years ago Hodgkin described a clinical picture characterized by enlargement of the lymph nodes and sometimes also of the spleen. Later investigators were able to demonstrate that Hodgkin's description included disorders that differed greatly in etiology. Tappeiner describes 13 cases of lymphogranulomatosis with involvement of the skin which were observed at a Vienna dermatologic clinic in the course of the last decade. He differentiates four main forms: (1) the unspecific, (2) the transitional, (3) the specific and (4) the mixed form. He subdivides the unspecific form in (*a*) localized, (*b*) generalized and (*c*) universal manifestations. The transitional form usually resembles the specific form mentioned under 3. The specific form is classified by the author into (*a*) the infiltrating, (*b*) the nodular and (*c*) the ulcerous. In the mixed form, various types concur. The author describes the clinical aspects and the course of atypical observations, particularly of the ulcerous form (ulcus lymphogranulomatosus) and other hitherto unobserved cutaneous changes. He discusses the granulomatous and the blastomatous nature of lymphogranulomatosis and its differentiation from a rare form of mycosis fungoides that is accompanied by nodule formation in the internal organs. The frequent occurrence of lipoid phagocytes in the lymphogranulomatous tissue, in the lymph nodes as well as in the skin, is worthy of attention. The author evaluates this observation as related to Letterer's in xanthomatous lymphogranulomatosis, Gottron's in Hand-Christian-Schüller's disease and Arzt's in xanthomatosis. Attention is directed to the involvement of mucous membranes and of internal organs and to rare localizations in the myocardium, the bladder and the female genitalia.

Chemotherapy of Erysipelas.—Volavsek reports observations made in the course of oral administration of azosulfamide in 600 cases of erysipelas. In order to estimate the efficacy of this sulfonamide compound the results obtained were compared with those observed in 600 cases of erysipelas treated before the sulfonamide era. The patients were given 2 tablets of 0.3 Gm. each three times daily until the fever had subsided, and after that 1 tablet three times daily until the cutaneous symptoms disappeared. The sulfonamide treatment reduced complications from 15.5 to 4 per cent and the mortality from 6.5 to 2 per cent. The reduction in complications concerned chiefly phlegmons and abscesses. The fever subsided in 3.2 days as compared to 5.6 days without the use of the sulfonamide. The therapeutic effect of the sulfonamide was also manifested in a 50 per cent reduction of recurrences and in shortening of the average length of hospitalization from 11.9 to 8.5 days. Chemotherapy of erysipelas reduces the severity of the infection and thus leads to a more rapid cure; it represents a great advance in the therapy of erysipelas.

Beiträge zur klinischen Chirurgie, Berlin

171:497-664 (Feb. 15) 1941. **Partial Index**

*Vertebral Sarcomas. R. Kienböck.—p. 497.
Deformities of Cervical Vertebral Column. R. Kienböck.—p. 508.
Traumatic Lesions of Spleen. P. Piulachs and G. Aguiló-Mercader.—p. 510.
Plastic Surgery of Rectal Prolapse by Means of Thiersch's Fascia Ring Operation. W. Pohl.—p. 520.
*Ligation of Carotid Artery. F. Niedner.—p. 524.
Bechterew's Disease: Contribution to Knowledge of Exudative Synostotic Form of Articular Tuberculosis with Vertebral Ankylosis. T. Canigiani.—p. 547.
Skeletal Changes Due to Overstrain in Light of Cartilaginous Callus Formation. S. Nagura.—p. 553.
Form and Significance of Interrupted Circulation in Etiology and Pathogenesis of Aseptic Epiphysial Necrosis. F. J. Lang.—p. 581.

Vertebral Sarcomas.—According to Kienböck sarcomas appear in the vertebral column and in other parts of the skeleton in varying anatomic forms. He describes vertebral sarcomas of the infiltrating, sclerosing type in 4 children, outlining the clinical and roentgenologic aspects. The cases show great similarity in their clinical as well as in their roentgenologic aspects. A vertebral body may show a diffuse density and a superficial haziness. This gives the impression of an inflammatory disease of the bone, such as osteomyelitis or tuberculosis, especially if a noncalcareous, paravertebral mass adheres to the vertebra. This may simulate an abscess, a gravitation abscess, but is in reality a proliferating, softened tumor mass. The author reports the history of a man aged 47 who had an infiltrating, sclerosing sarcoma with osteoplastic infiltration of the adjoining tissues, protrusion into the vertebral canal and compression of the spinal cord.

Ligation of Carotid Artery.—Niedner reviews histories of 4 patients who were subjected to ligation of the internal or the common carotid artery because of an intracranial aneurysm. The multiformity of the manifestations of intracranial aneurysm makes it impossible to cure all by the same operation. Ligation of the internal carotid artery is the operation of choice for basal aneurysms of the carotid artery and for aneurysms of the small vessels inside the brain. In these cases the mortality of carotid ligation is slight. Ligation for other conditions gives a high mortality. Previous to ligation of the carotid and previous to operation in the course of which the need for ligation may arise, it is advisable to obtain an arteriogram of the healthy side in order to ascertain the likelihood of a collateral circulation developing. None of the other tests for collateral circulation are as reliable as the arteriogram. Patients in whom a collateral circulation is not likely to form because of advanced arteriosclerosis of the cerebral vessels or because of an open circle of Willis should be excluded from treatment by ligation of the carotid artery. Ligation should not be performed in the presence of suppuration in the neck or when infection of the operative field can be expected. In the presence of an arteriovenous intracranial aneurysm, ligation of the internal carotid artery is done at the earliest from four to six weeks

after the appearance of the disturbance. In all other cases the aim should be to promote the formation of a collateral circulation. The blood current in the common carotid artery is cautiously blocked by slow closure with a clamp. This clamp should be applied as far away from the carotid bifurcation as is possible. If in the course of five minutes there appear no signs of nutritional disturbances in the brain, such as stupefaction, vertigo, headache, fainting or signs of abolished function, the common carotid artery may be constricted with a strip of fascia. An additional ligature should be placed over the strip of fascia. In cases in which untoward secondary effects might develop, it is desirable to ligate the internal jugular vein of the same side and to divide the truncus sympathicus. Care should be taken not to injure the vagus nerve. Inhalation of carbon dioxide is advisable during the first few days after ligation, particularly if signs of failure of circulation appear. If these safeguards are maintained, it may be possible to ligate the carotid with beneficial effects, which will far outweigh the undesirable accompanying symptoms. The formerly high mortality may be reduced to a minimum.

Ztschr. f. Hals-, Nasen- und Ohrenheilkunde, Berlin

47:103-338 (Dec. 24) 1940. **Partial Index**

*Mucosal Detachment and Hematomas of Nasal Sinuses in Aviators. A. Herrmann.—p. 103.
Herpes Zoster of Ear Treated by Injection of Omnadin. F. U. Magnussen.—p. 119.
*Ligation of Carotid in Erosion Hemorrhage Due to Peritonsillar Abscess. J. Stabenau.—p. 125.
Aspirated Dental Prothesis in Laryngeal Cavity. A. Schulz van Treeck.—p. 142.
Diagnostic Value of Audiograms in Various Forms of Deafness, with Special Reference to Sinking of Auditory Curve. L. Stern.—p. 150.
Osteomyelitis of Frontal Bone. H. G. A. Bayer.—p. 202.

Mucosal Detachment and Hematomas of Nasal Sinuses in Aviators.—Herrmann reports observations on four aviators in whom rapid change in altitude (diving) was followed by partial detachment of the mucosa in the maxillary or frontal sinuses. This detachment resulted in the formation of hematomas between bone and detached mucosa. All these aviators reported that they suddenly experienced a piercing pain in the sinuses and around the eye and that later they had an annoying feeling of pressure. Another characteristic aspect was that they observed a sucking noise. Roentgenoscopy revealed that the hematoma causes a protrusion of the mucosa into the sinus, so that the shadow of the hematoma differs noticeably from that of the other, air filled part of the sinus. Treatment should aim at a stimulation of the resorption. Irradiation with short waves or stimulating doses of roentgen rays and the treatment of the generally existing coryza are usually adequate and cause the disappearance of the symptoms within a few weeks. Occasionally, in case of a complete obstruction of the openings and of complete interference with ventilation, it may become necessary to make a wide opening to the nose. In the first aviator, who presented the aforementioned symptoms, the frontal sinus was opened, the hematoma removed and a wide opening made toward the nose. The recovery was uneventful. Permanent lesions have not been observed. All patients were freed from their complaints and could resume their duties.

Ligation of Carotid in Erosion Hemorrhage Due to Peritonsillar Abscess.—Stabenau reports 7 cases in which this operation was employed to control erosion hemorrhage the result of a peritonsillar abscess. Ligation of the carotid in these cases was more effective than any other treatment. Other indications for the ligation of the carotid artery are hemorrhage as the result of injury to the carotid, hemorrhages in the course of extirpation of malignant tumors which adhere to the artery, and in operations for aneurysm. At the otorhinolaryngologic clinic in Leipzig ligation of the carotid artery has given favorable results in erosion hemorrhages resulting from peritonsillar abscess. The surgical technic described largely prevents possible cerebral complications of ligation of the carotid, so that the skepticism with which this operation is regarded is not justified.

Nordisk Medicin, Stockholm

12:3387-3466 (Nov. 29) 1941. **Partial Index**

Hospitalstidende

*Case of Acute Febrile Hemolytic Anemia of Lederer Type. K. Høyer.—p. 3387.

Acute Febrile Hemolytic Anemia of Lederer Type.—Høyer reports a case in which pallor, jaundice and hemoglobinuria appeared after a catarrhal angina in a boy aged 3. Anemia developed with the appearance of microcytes and megalocytes accompanied by leukocytosis and continued fever of about 100.4 F. There were normoblasts and erythroblasts in the blood and the reticulocyte count was increased, suggesting lively reaction in the bone marrow. The blood platelet count was reduced. The osmotic resistance of the erythrocytes was normal. Blood transfusion resulted in immediate improvement, and in the course of a month the boy was well. The author finds the clinical picture similar to that described by Lederer. The etiology of the disorder is unknown. Blood transfusion is the sovereign remedy. The manner of its action is not understood. Liver and iron are without effect in the acute stage but can be excellent adjuvants in the convalescent period.

Norsk Magasin for Lægevidenskapen

Experiences in Treatment of 200 Cases of Lobar Pneumonia with M and B 693, with Remarks on Treatment of Cases Resistant to Sulfapyridine. T. Holst-Larsen.—p. 3391.
*Recurrent Hemorrhages and Arthritis Urica. R. Opsahl.—p. 3398.
Differential Diagnosis in Chronic Spinal and Pelvic Inflammations. N. S. Nissen-Lie.—p. 3403.
*Hypertension as Result of Renal Ischemia in Dissecting Aneurysm of Aorta. K. Bærøe.—p. 3408.
Two Cases of Rectal Stricture in Venereal Lymphopathy. R. Steinert.—p. 3412.
Case of Infarct in Greater Omentum. O. Bang-Dietrichson.—p. 3413.

Recurrent Hemorrhages and Arthritis Urica.—Opsahl describes 3 cases with the picture of (1) recurring hemorrhages of unknown cause, (2) arthritis urica and (3) hypertension. The hemorrhages occurred suddenly from the respiratory tract or the gastrointestinal tract, in 1 case from both, and are characterized by their tendency to recur. The arthritis urica also shows certain common features. Gradually in the course of many years a chronic polyarthritis develops with considerable destructive changes in cartilage and bones and with the typical picture of arthritis urica. In 2 cases there have been acute aggravations with transient enlargement and tenderness of one or several joints, usually one at a time. There is considerable hypertension in 2 of the cases, without reduction of the cardiorenal function; the third case shows less hypertension and definitely reduced renal function. The author is inclined to believe that these patients have the constitutional anomaly which is the basis for arthritis urica and are exposed by the recurring hemorrhages to what he calls endogenous uric acid overloading with resulting manifest arthritis urica. In 2 cases, he says, the arthritis is perhaps due to this overloading with the endogenous uric acid, as the hemorrhages probably began before involvement of the joint; in the third it is more likely that the joint was already involved but that the condition was aggravated after the start of the hemorrhages.

Hypertension as Result of Renal Ischemia in Dissecting Aneurysm of Aorta.—Three months before admission Bærøe's patient, a man aged 63, had normal blood pressure and urine. Moderate pain in the left lumbar region and intermittent fever set in; on admission there was considerable hypertension, but the diuresis and the renal function were good. Intravenous urography showed deficient excretion by the left kidney, while retrograde pyelography indicated normal conditions. The diagnosis was occlusion of the left renal artery and nephrectomy was considered, but increasing renal insufficiency developed and the patient died from uremia. A dissecting aneurysm of the abdominal aorta was found, with complete occlusion of the left renal artery, while the right renal artery was patent. The aortic lesion and the occlusion of the left renal artery are assumed to have developed progressively, with the occurrence of hypertension of Goldblatt's type. Eventually increasing thrombus masses blocked the blood supply to the right kidney, and uremia rapidly developed. The absence of sclerosis or necrosis of the arterioles is attributed to the short duration of the renal insufficiency.

Book Notices

Directory of Medical Specialists Certified by American Boards, 1942. Published for the Advisory Board for Medical Specialties. Directing Editor, Paul Titus, M.D. Cloth. Price, $7. Pp. 2,495. New York: Columbia University Press, 1942.

The first edition of the directory was published in 1939. The second edition contains information in regard to eighteen thousand physicians who have applied for and have been granted certification by the various specialty boards. It is impossible to state how many qualified specialists in the country have not sought such certification and are therefore not included in the directory. The directory cannot be considered as providing a complete list of all qualified specialists in the various fields of medical specialties. However, the fact that the new edition contains four thousand additions since the publication of the first edition is an indication of the respect which the profession has for certification by the various specialty boards. The greater portion of the directory is devoted to a geographic listing of the specialists certified, a special section being devoted to each of the specialty boards. Rather complete biographic information is given with regard to the training and experience of each of the physicians listed. Included in each section is a list of the officers and members of the various specialty boards, together with history and organization reports, qualifications of candidates for certification and methods of conduct of examinations. Following the section devoted to the various specialty boards is an alphabetical list of all specialists certified, together with their addresses and the specialty board by which they have been certified. The directory provides much valuable information and will be especially useful in connection with the mobilization of the medical profession in the present military program.

White Eagle, Chief of the Poncas. By Charles Leroy Zimmerman, M.D. Cloth. Price, $2.50. Pp. 273, with 170 illustrations. Harrisburg, Pa.: Telegraph Press, 1941.

White Eagle, for fifty years chief of the Ponca tribe of American Indians, was remarkable for his great mind and was noted for his courage, high ideals and principles combined with the attributes of an orator and statesman. The author years ago was agency physician for the Poncas. He has done worthy and interesting research in writing a history of the tribe. He has drawn freely from official sources, traditions, folklore and old men's tales recorded through interpreters. The migrations of the Poncas through much of the United States and possibly Mexico, Central and South America probably have extended over thousands of years, yet today the tribe has some customs similar to those of the days of the mound builders. The author adds to the dim past, their tribal ceremonies, the history of their more recent wars, their belief in the supernatural, which was the province of their medicine men, and the factual history of their treaties with our government. The oldest son of White Eagle was the last hereditary tribal Indian chief in the United States. Under present government ruling no tribe may select a chief after the death of those in power at the time the government order was issued. The affairs of the Poncas therefore are now in the hands of a council consisting of White Eagle's grandson, McKinley Eagle, and six other persons.

Handbook of Communicable Diseases. By Franklin H. Top, A.B., M.D., M.P.H., Director, Division of Communicable Diseases and Epidemiology, Herman Kiefer Hospital and Detroit Department of Health, Detroit, and Collaborators. Cloth. Price, $7.50. Pp. 682, with 83 illustrations, including 10 color plates. St. Louis: C. V. Mosby Company, 1941.

Textbooks dealing with communicable diseases often fail to give the reader a broad view of the public health aspects of these disorders. The tendency is rather to adhere to the presentation of clinical data and their discussion. This may be the reason why the medical student and many practicing physicians fail to acquire an adequate knowledge of the public health connotations of communicable disorders. This book has combined the clinical aspects of communicable disease with the epidemiologic. For example, in the discussion of pneumococcic pneumonia there is an excellent presentation of the clinical aspects of the disease together with much important epidemiologic information. It is pointed out that certain types of pneumococci are much more frequent in healthy family contacts than in the population at large. This has but recently been made known to public health workers and is of more significance to them than to the general practitioner. Sufficient material is presented in the text to broaden the point of view of the reader be he a general practitioner, nurse, public health worker or teacher. The various diseases in the text are classified according to the port of entry of the etiologic agent. No matter what classification is used, some overlapping occurs; but the departure from the usual method of presentation is interesting. The color plates are good and the illustrations adequate.

Textbook of Medical Treatment. By Various Authors. Edited by D. M. Dunlop, B.A., M.D., F.R.C.P., Professor of Therapeutics and Clinical Medicine, University of Edinburgh, Edinburgh, L. S. P. Davidson, B.A., M.D., F.R.C.P., Professor of Medicine and Clinical Medicine, University of Edinburgh, and J. W. McNee, D.S.O., D.Sc., M.D., Physician, H. M. the King in Scotland. With a foreword by the late Professor A. J. Clark, B.A., M.D., D.P.H. Second edition. Cloth. Price, $8. Pp. 1,179, with illustrations. Baltimore: William Wood & Company, 1942.

The first edition and a large amended reprint of this book were exhausted in approximately two years, a fact which speaks well for its value to medical practitioners and students. The book is designed to fill the gap left by the majority of textbooks on general medicine in their sections on treatment. This edition has been completely revised, and certain errors of omission and commission corrected. The sections devoted to epidemic meningitis—cerebrospinal fever of the British—septicemia, venereal diseases and respiratory diseases have been extensively revised and brought up to date—a requirement brought about largely through the rapid advances in sulfonamide therapy. An interesting difficulty encountered in this revision is concerned with dietetic treatments and the availability of certain foodstuffs in Britain during the war. Thus, for example, two paragraphs are devoted to wartime restrictions and modifications in the diabetic diet. Most of the treatments outlined are reasonably standard, though experienced internists may in some instances differ as to the detail of certain of the recommendations. It is difficult to single out any special sections for criticism or commendation. However, the discussion on the adjustment of the sexual instinct is combined with so much common sense and unusual brevity as to impress the reviewer particularly. This is essentially a reference book for medical students and general practitioners on the standard procedures of medical treatment.

Nursing Care of Communicable Diseases: Prophylactic Technics for the Prevention and Control of Disease. By Mary Elizabeth Pillsbury, R.N., M.A. With a chapter on Fungous Diseases. By Grace Maguire Swanner, M.D. And a Brief Picture of Public Health Nursing. By Mary E. Edgecomb, R.N. Science Adviser: Jean Broadhurst, Ph.D., Professor of Bacteriology, Teachers College, Columbia University, New York City. Sixth edition. Cloth. Price, $3. Pp. 604, with 138 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1942.

This book contains a store of information for one who either plans to follow a career in public health or is now engaged in that special field of nursing. For the average student in training the scope of the text is perhaps too broad to be readily absorbed. Nevertheless, it would still serve well for reference, and medical students and practitioners also could profit from its use.

Although the author states in the preface to this edition that she has "carefully reviewed the entire text" and that "particularly important is the addition of new material on chemotherapy," no noteworthy improvements over the preceding edition are apparent.

Discussions relating to the treatment of some of the sixty different diseases included in part two, though necessarily brief, could be better. In the chapter on diphtheria a nurse might easily gain the impression that sulfanilamide could be given as a substitute for antitoxin. And the statement in reference to laryngeal diphtheria that "immediate relief to the breathing is given by suction" expresses a degree of optimism which could be based only on a lack of experience. The description of the nurse's duties relating to intubation are incomplete.

There is no mention of the sulfonamides in connection with erysipelas, and the chapter on meningitis evidently escaped revision. The latter should be brought up to date. The author says that the prognosis for influenzal, streptococcic and pneumococcic meningitis "is almost always hopeless, the fatality being about 100 per cent." It is also stated that meningococcic meningitis patients are given antiserum intraspinally every eight to twenty-four hours.

Reference to the Dicks' accomplishments is scanty, and the assertion that "the urticaria following the giving of the serum may not show up until one to two weeks" is misleading. There are few reactions from the scarlet fever antitoxin now on the market. Apparently a poor opinion is held with regard to vaccine for whooping cough prevention. No vaccine is specified by name. The horse serum mentioned for the treatment of poliomyelitis may refer to Rosenow's antipoliomyelitic serum, but if so there is nothing to indicate it.

There seems to be a trace of provincialism in the medical aspects of the book.

Medical State and National Board Summary. By William H. Kupper, M.D. With a foreword to the Candidate by Earl S. Hallinger, M.D., Secretary New Jersey State Board of Medical Examiners. Cloth. Price, $4.50. Pp. 369, with 40 illustrations. Paterson, N. J.: Colt Press, Publishers, 1942.

This is a compendium designed to provide a handy and inexpensive summary for state board applicants, physicians, interns and nurses. The condensation has been so thorough that the author believes he has made available in one volume most of the fundamental principles of the science of medicine which ordinarily occupy several volumes. This has been possible through the extensive use of line drawings of the organs, areas and parts of the body and by a compact style of writing. The first chapter is on anatomy, the second on physiology, followed by biochemistry, pathology, bacteriology, preventive medicine, pharmacology and therapeutics, obstetrics and gynecology, surgery and medicine. Most of the chapters are followed by numerous questions with the page indicated where the answer will be found. A chapter contains questions asked in a recent examination by the National Board of Medical Examiners followed by brief answers or references to pages in the book where the answers will be found. The book closes with a glossary of commonly used medical terms and three pages on the history of medicine with names of distinguished members of the profession and the achievements that led to their prominence.

Dermatologic Therapy in General Practice. By Marion B. Sulzberger, M.D., Lt. Comdr. (M. C.) U. S. N. R., Assistant Clinical Professor of Dermatology and Syphilology, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University, New York, and Jack Wolf, M.D., Attending Dermatologist and Syphilologist, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital of Columbia University. Second edition. Cloth. Price, $5. Pp. 632, with 67 illustrations. Chicago: Year Book Publishers, Inc., 1942.

Here, designed especially for the general practitioner is a manual on diseases of the skin. The success of the first edition prompted a development of the new edition, with special emphasis on the five day treatment of syphilis, the treatment of burns and the use of the sulfonamides in dermatology. The association of the senior author with the Navy caused some changes in the book especially to adapt it to the use of naval medical officers. The book is in every sense a practical handbook for the physician who does not specialize in dermatology. It should serve, however, also as an excellent work for teachers of dermatology, who are necessarily limited in the amount of time that may be given to instruction in this subject.

The Golden Jubilee of the Association of Military Surgeons of the United States: A History of its First Half-Century—1891-1941. By Edgar Erskine Hume, Colonel, Medical Corps, United States Army. Cloth. Price, $2. Pp. 371, with illustrations. Washington, D. C.: The Association, 1941.

The idea of forming the Association of Military Surgeons of the United States originated with Dr. Nicholas Senn, professor of surgery at Rush Medical College, Chicago. Dr. Senn practiced military surgery in Cuba in the Spanish-American War, where he was chief surgeon of the Sixth Army Corps. The first meeting of the association was held on Sept. 17, 1891 at the Leland Hotel, Chicago. Dr. Senn was elected its first president. The author of this history summarizes consecutively the work of and the program presented at each of the forty-eight annual meetings which have been held. He prints the names of honored guests at the meetings, the resolutions passed, the titles of papers presented, pictures of the past presidents, the convention badges, and some title pages of the *Military Surgeon*, the official organ of the association. Brief biographic sketches are presented of each editor of the *Military Surgeon;* also a tabulation year by year of the papers published.

Schizophrenia: The Cinderella of Psychiatry. By Reg. S. Ellery, M.D., F.R.A.C.P., Consulting Alienist to Women's Hospital, Melbourne. Cloth. Price, 12s. 6d. Pp. 170. Sydney: Australasian Medical Publishing Company, Limited, 1941.

This monograph is called by the author "an adventure into that realm that sprawling mental province called schizophrenia." It is a cleverly written contribution and is simple to digest. The author has borrowed idioms and sayings from many literary geniuses to emphasize the point under discussion. He speaks of Nebuchadnezzar's Bitter Grass, Through the Looking Glass, the scourge of schizophrenia, in the beginning, flowers of Evil. In the eyes of the reviewer this is a unique way of expressing oneself regarding schizophrenia. For that reason the book should be a "must" purchase for every neuropsychiatrist. Psychotherapy, prognosis and prophylaxis are adequately discussed. Although there are no bibliography and no new facts, this contribution will serve as a brief summary of the data regarding schizophrenia and for that reason is recommended.

Pediatric Gynecology. By Goodrich C. Schauffler, A.B., M.D., Assistant Clinical Professor of Obstetrics and Gynecology, University of Oregon Medical School, Portland. Cloth. Price, $5. Pp. 384, with 66 illustrations. Chicago: Year Book Publishers, Inc., 1942.

This pioneer book deals with pediatric gynecology. The author has had extensive experience, so the book is based not only on the literature but also on large personal knowledge. The material encompasses not only disturbances of the external and internal female genitalia but also surgical considerations including urologic and proctologic conditions. There is an excellent chapter on menstruation and its disorders in young girls. At the end are chapters on social service and medicolegal aspects of pediatric gynecology. The book is beautifully written and amply and clearly illustrated. The publishers have done their part extremely well. This book definitely belongs in the hands of every gynecologist, pediatrician, urologist, proctologist and general practitioner who deals with young girls.

Contribución al estudio de la terapéutica de la infección tuberculosa. Por el Prof. Isidoro Ricardo Steinberg. Tesis de profesorado. Paper. Pp. 365, with 12 illustrations. Buenos Aires: Aniceto López, 1940.

This is a well organized and orthodox summary of the recognized methods of treatment of tuberculosis, offered as a professorship thesis to the University of Buenos Aires. The author has classified the subtitles under the three general heads (1) treatment of the soil, (2) treatment of the bacillus, (3) treatment of the focus. Under each of the general headings there are chapters carefully divided into paragraphs, each contributing its quota necessary to complete the entire field indicated in the title. The presentation constitutes an excellent compendium relating to all the methods of treatment, nonsurgical and surgical, recognized as appropriate according to present day standards.

The Bond Between Us (The Third Component). By Frederic Loomis, M.D., Diplomate of the American Board of Obstetrics and Gynecology. Cloth. Price, $2.50. Pp. 267. New York: Alfred A. Knopf, 1942.

The author of Consultation Room again has drawn on his experiences as a clinician who specialized in obstetrics and gynecology to produce a book with sufficient interest and humor to create further approbation of his writings. Regardless of whether this book will receive more popularity with the public than with the medical profession, it is one which should interest the student and young practitioner. Perhaps any appeal in the book results from the author's heedfulness of Furstenberg's statement "It is our aim to demonstrate that there are more than cold facts in any medical curriculum."

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

APPLICATION OF HEAT FOR SHOCK

To the Editor:—**Although I prescribe conservation of body heat in the treatment of shock, this treatment is not compatible with my understanding of the physiologic basis of shock therapy. I realize that a subnormal temperature is common in shock; however, the body temperature can safely fall much lower than we see even in shock. If our chief object in the treatment of shock is to maintain ample blood supply to the brain and internal viscera, why should we bring this blood to the periphery by applying blankets and external heat? It would seem to me more advantageous to allow the body surface to be cool so that the blood supply could be shifted to the internal organs, even though it would result in a slight lowering of the body temperature. I would be interested in your opinion on this subject.**

I. R. Morrison, M.D., Atchison, Kan.

ANSWER.—The principle of conservation of body heat in the treatment of shock is established on the extensive practical studies made during the World War. Exposure to cold of soldiers in shock had a bad effect, and benefit was observed from the application of heat.

Superficially it may appear that cooling of the body of a person suffering from shock would be advantageous for the reasons stated in the inquiry; however, relatively little blood can be expressed from the skin by cooling because of the peripheral vasoconstriction present in shock. In fact, if cooling of the surface of the body is attended by a fall in body temperature of as little as 0.5 degree, shivering may be induced. This would greatly increase the expenditure of energy and increase the blood flow through skeletal muscle, which would be distinctly dangerous to the shocked person. Furthermore, as the temperature of the body is reduced, hemoglobin holds oxygen more firmly. This would aggravate the anoxia that is present in shock.

Excessive warming of the body is also to be avoided for the reasons outlined in the question. The practical application of the principle of conservation of body heat in the treatment of shock is, therefore, not as simple as it appears. It is probable that the patient in shock unless his body temperature—not skin temperature—is below normal does not require an environmental temperature above comfortable levels. The coldness of the skin, a common indicator for the use of heat, is due to peripheral vasoconstriction. The use of extreme heat is undoubtedly harmful, and experimental evidence fails to show harm from cold. (Blalock, Alfred, and Mason, M. F.: A Comparison of the Effects of Heat and Those of Cold in the Prevention and Treatment of Shock, *Arch. Surg.* **42**:1054 [June] 1941). A sound practical rule to follow in governing the covering and warming of persons in shock is to keep them warm and dry.

CALLUSES ON HANDS OF HAT WORKERS

To the Editor:—**Kindly advise me as to the best method of treatment of callus formation on the skin of the palms of the hands; this procedure is to be used for laborers whose hands are continually in steam while blocking hats. The body salt loss has been replaced by salt ingestion.**

George S. Stern, M.D., New York.

ANSWER.—The extent of callus formation among workers occupied in blocking felt hats probably is partially based on an individual disposition. Persons with a tendency to ichthyosis, xerosis and hyperhidrosis are said to be more inclined to have calluses than "normal" persons.

Treatment of calluses—which to a certain degree protect the worker's hands against steam, acids and friction—is usually not indicated unless they become painful, eczematized or fissured. If, however, such treatment becomes necessary, the hands should be soaked for one or two days (one hour, four times daily) in warm boric acid solution; soaking is to be followed by the application of a 10 to 20 per cent salicylic acid ointment for several days, after which time the excessive horny tissue can be shaved off with a scalpel. Fissures should be painted twice daily with a 10 per cent silver nitrate solution.

In cases of resistant calluses intensive roentgen irradiation can be tried, but this is usually followed by a recurrence if the worker resumes his regular occupation. The tendency to hyperkeratosis and fissuring can be reduced in some cases by the ingestion of large doses of vitamin A or by thyroid medication. In suitable instances rubber gloves may be worn as a protective measure.

ALLERGY AND METRAZOL SHOCK

To the Editor:—**Several months ago a Negro aged 20 with dementia precox came under my care. He was given metrazol shock therapy with good results at first but later relapsed and has not responded well this time. He has a history of hay fever and moderate asthma occurring during the fall (ragweed season) and shows sensitivity to ragweed on cutaneous tests. He has had this allergy since early childhood. There is also a family history of allergy. The point of interest is that since metrazol therapy the sensitivity has persisted on cutaneous testing but he has had no hay fever or asthma during this ragweed season for the first time in many years. Did metrazol therapy have anything to do with his relief? Could you give me any references to the literature on this type of case?**

M.D., Tennessee.

ANSWER.—Metrazol is one of the methods used for shock therapy in dementia precox. It is a powerful drug and causes severe reactions. These changes probably lead to a condition akin to that produced by other types of nonspecific shock therapy, e. g., intravenous typhoid or gonococcus vaccine or fever therapy as induced by diathermy. These methods of treatment frequently bring temporary relief in various forms of allergic conditions, especially bronchial asthma, hay fever and allergic rhinitis. It is also well known that allergic conditions, especially asthma, not infrequently disappear in whole or in part during pregnancy or after a bout of fever, as from pneumonia or influenza. The cause of such relief is not known, but it is known that the relief is not permanent. One would expect that the patient's hay fever and asthma would return during the next ragweed season.

Aigner (*Med. Klin.* **33**:1306 [Sept. 24] 1937) employed a mixture of metrazol and ephedrine, which he found effective in the treatment of bronchial asthma as well as cardiac and pulmonary disorders in which dyspnea occurred. Of course the good effect of this compound might well have been due to the ephedrine. It is also well known that insulin shock therapy (which is similar to metrazol shock) of asthma has been used with apparently good, although temporary, results. The following are references to insulin shock:

Minet, J., and Warembourg, H.: *Paris méd.* **1**: 357, 1939.
Vollmer, H.: *Arch. Pediat.* **56**: 223, 1939.
Hofmann, A.: *Beitr. z. Klin. d. Tuberk.* **92**: 58, 1938.
Joseph, B.: *M. Rec.* **149**: 16 (Jan. 4) 1939.
Langeron, L.; Cordonnier, V., and Baudel, B.: *Bull. et mém. Soc. méd. d. hôp. de Paris* **55**: 812 (May 29) 1939.
Bartelheimer, H.: *Deutsche med. Wchnschr.* **64**: 1254 (Aug. 26) 1938.

THE ARTICHOKE

To the Editor:—**As a subscriber to The Journal I wonder why you have never mentioned the artichoke (Cynara scolymus), so much spoken of in European medical reviews and so much used and prescribed by physicians here and in Europe. Many writers support the theory that the extract of the artichoke has highly medicinal properties, and while it has not progressed much in other American countries this theory has good standing in Colombia. In view of the facts given and because the artichoke has attracted the attention of the medical profession in several parts of the world, it is strange that in the United States physicians have not taken the trouble to investigate this plant. I believe it would be worth while if your Association would look into the matter in order to encourage some trials or observations and publish the results obtained.**

Carlos Arbelaez C., Medellin, Colombia.

ANSWER.—Extracts of artichoke are apparently available commercially in France, and their use has been advocated in the treatment of hepatic and renal diseases, postoperative oliguria, pruritus, urticaria and asthma. Two plants called artichokes are commonly used as food. One is the Jerusalem artichoke (Helianthus tuberosus L.) and the other the French artichoke (Cynara scolymus). The tubers of the Jerusalem artichoke are similar to the potato and constitute the edible portion of the plant. The flower bracts of the French artichoke are considered a delicacy. The French artichoke is the species usually found on the market. Both types contain the carbohydrate inulin, which is hydrolyzed to levulose instead of to dextrose, and because of this artichokes have been advocated as a food for persons with diabetes. However, there is no evidence that the diabetic tolerate levulose any better than they do dextrose; so apparently artichokes offer no advantage over the ordinary carbohydrate foods. This view has been stated in THE JOURNAL, Feb. 4, 1933, p. 342.

Several reports have originated in France regarding the use of extracts of the leaves and roots of the French artichoke as a cholagogue and diuretic. A crystallized material called cynarine has been isolated from these extracts. Apparently the edible portion of the French artichoke does not contain cynarine.

Artichoke extracts also have been advocated as an antitoxic substance. The evidence for their antitoxic action is not too conclusive. For instance, Gaudin (*Bull. d. sc. pharmacol.* **46**:167, 1939) fed sodium cacodylate to a series of guinea pigs. To some of the animals he fed also an extract of artichoke representing 35 Gm. of artichoke per kilogram of body weight daily.

He claimed that autopsy revealed that there was less damage to the livers of the guinea pigs receiving the artichoke extract. However, he admitted that life was not prolonged by the administration of the extract.

PROBABLE CEREBROSPINAL SYPHILIS IN INFANT

To the Editor:—A boy aged 16 months, a second child, delivered with low forceps after a labor of seven hours, weighed at birth 8 pounds and 14 ounces (4 Kg.). He smiled at 1 month, held up his head at 3 months and cut his first tooth at 6 months. At 5 months he began having daily clonic twitchings of the extremities. During these attacks, which recur four or five times every twenty-four hours, the extremities are drawn up and twitch; the eyes roll back, and the back is arched. Since the fifth month the child's progress has been retarded. At the age of 1 year he was hospitalized for study. The blood count and the urine were normal; the blood sugar content during fasting was normal (85 mg.). Roentgenograms of the skull and the chest were negative; the Wassermann reaction of the blood of both mother and child was negative. The child's stool did not contain ova or parasites; the spinal fluid cell count was 3; the globulin reaction was negative; the colloidal gold curve was 0000000, and the Wassermann reaction of the spinal fluid was 4 plus. The blood calcium and phosphorus content was normal. The child has always had a poor appetite and has been hard to feed. The diet has been nutritious, with an adequate vitamin content. At present he is definitely retarded mentally. The general muscle tone is poor. The pupils are equal and react to light. The anterior fontanel measures 1 inch by 1 inch (2.5 by 2.5 cm.); the posterior fontanel is closed. The height is 33½ inches (84 cm.), and the weight 20 pounds and 1½ ounces (9.1 Kg.). The child is expressionless, drools saliva, will not notice objects, cannot hold up the head or sit up and moves the right leg more than the left. Reflexes are present on both sides but are more active on the left. In all respects the child appears mentally defective. Should he have antisyphilitic treatment because of the 4 plus Wassermann reaction of the spinal fluid? Is it possible to have a positive Wassermann reaction of the spinal fluid with a negative reaction of the blood in mother and child?

William M. Petty, M.D., Pittsburgh.

ANSWER.—The boy described probably has cerebrospinal syphilis. There is no doubt that he has organic lesions in the brain. A birth injury, encephalitis, brain tumor and the like could cause such a picture but the 4 plus Wassermann reaction of the spinal fluid definitely points toward neurosyphilis. The Wassermann test of the spinal fluid should be repeated to confirm the first one before treatment is started.

It is possible to have a postitive reaction of the spinal fluid with a negative Wassermann reaction of the blood. The child should have antisyphilitic treatment because of the 4 plus Wassermann reaction of the spinal fluid. Considerable improvement may result, but it is doubtful that complete recovery is possible.

PERIADENITIS MUCOSA NECROTICA RECURRENS

To the Editor:—A woman aged 43 has recurrent and rapidly receding "pimples" in her mouth which develop over three or four hours, are painless, rupture, exude a thick stringy substance and disappear, leaving no residue to be observed. This phenomenon has occurred about three times a week. She was treated for a typical attack of lichen planus including oral lesions about a year ago with twenty intramuscular injections of 2 grains (0.13 Gm.) of bismuth subsalicylate, with complete disappearance of all lesions. She has demonstrated the "pimples" to her family, but before she is able to come to the office they have disappeared. All laboratory data are normal. Examination reveals linear white elevations along the inner sides of both cheeks and a recent similar noninflammatory lesion on the under surface of the tongue. I have considered retention cysts, lichen planus and dermatitis herpetiformis but am unable to fit the picture with any condition. Elimination diets were of no avail. Any assistance as to diagnosis and treatment will be appreciated.

M. E. Friedman, M.D., New Buffalo, Mich.

ANSWER.—The occurrence of small painless nodules or "pimples" on the buccal mucosa that "exude a thick stringy substance" or result in the separation of a solid mummified-looking plug suggests the diagnosis of periadenitis mucosa necrotica recurrens. The course of this condition is chronic, and it is usually resistant to ordinary methods of treatment. The ingestion of drugs, e. g. phenolphthalein, should be ruled out, and any mouth washes or tooth paste used by the patient should be of a bland type. Attacks sometimes occur after the ingestion of oatmeal, but as a rule the condition is seen in patients with nervous instability, endocrine imbalance and low constitutional tone. It is therefore advisable to examine the patient completely for possible foci of infection depleting her reserve and for anemia. Specific therapy to relieve any constitutional conditions revealed by a complete general examination, together with the use of soothing mouth washes and the local application each night of a paint consisting of 5 cc. of tincture of kino and 10 cc. of tincture of myrrh may be of value. Sometimes the oral lesions occur with lesions on the vulva (Wien, M. S., and Perlstein, M. O.: Ulcus Vulvae Acutum Associated with Lesions of the Mouth, THE JOURNAL, Feb. 6, 1932, p. 461).

EFFECT OF ELECTRIC SHOCK THERAPY ON NORMAL SPAN OF LIFE

To the Editor:—Is there any evidence that electric shock therapy shortens life?

Ralph H. Kuhns, M.D., Los Angeles.

ANSWER.—Electrically induced convulsions, since their introduction by Cerletti and Bini in 1938, have been employed chiefly in the treatment of patients with depressive mental states. Among their advantages claimed over the convulsive treatment with metrazol and insulin are that the danger of pulmonary and myocardial damage is seemingly less and that less of a fear reaction is produced in the patient. The danger of fracture, dislocation and injury to muscle appears also to be less in electric shock therapy than in therapy with metrazol. With metrazol therapy the chief cause of death is that exacerbation of chronic pulmonary tuberculosis is apt to occur. So far for more than ten thousand treatments by electric shock no deaths have been reported. However, because of the comparatively short experience with the new agent, no equivocal statement can be made at present as to whether the physiologic span of life of patients treated by electric shock may be shortened or not. The consensus is that electric shock treatment is contraindicated in the presence of serious chronic organic changes of the central nervous system, serious arteriosclerosis, cardiac disease, nephritis, active or recently healed pulmonary tuberculosis or other disease of the lung and any acute infection or febrile illness.

References:

Kalinowsky, L., and Barrera, S. E.: *Psychiat. Quart.* **14**: 719 (Oct.) 1940.

Hauser, Abe, and Barbato, Lewis: *Texas State J. Med.* **27**: 228 (July) 1941.

Whitsell, L. J.: *Am. J. M. Sc.* **203**: 147 (Jan.) 1942.

HENOCH'S PURPURA

To the Editor:—A woman aged 41 apparently has Henoch's purpura, and I should like some information as to treatment. The patient has recurrent ecchymoses of the skin, but her major symptoms are severe gastrointestinal pains, similar to gastric crises. Recently a laparotomy revealed no significant pathologic condition except some adhesions on the right side, which were released. Studies of the gallbladder and kidneys gave negative results, and the spleen was not enlarged. The patient has had appendectomy and hysterectomy. I hope you can advise me as to further treatment.

William D. Wessly, M.D., Glendale, Calif.

ANSWER.—The treatment of Henoch's purpura (nonthrombocytopenic purpura) varies for different patients, depending on the cause. Sensitizing substances in the form of drugs, food or environmental products must be studied and must be removed if they are shown to be a cause of allergic reaction. If the granules of the neutrophils in the stained blood film do not stain blue but show the normal violet, it is not likely that a pyogenic infection is present. Calcium lactate 1 Gm. three times a day may be given for its apparent effect in decreasing sensitivity to allergens. Epinephrine solution 1:1,000 may give symptomatic relief when injected subcutaneously or intramuscularly in doses of 0.5 to 1 cc. When there is evidence of a vitamin C deficiency, 100 to 200 mg. of ascorbic acid in solution may be given intravenously for several days. Occasionally the desired effect is not obtained when the medicine is given orally. The sensitivity of the patient to moccasin snake venom solution (1:3,000) should be determined, and the medicine can be given in increasing doses intramuscularly, the injections starting with 0.3 to 0.5 cc. twice a week and increasing until 1 cc. is given, over a period of weeks or months. A maintenance dose of 1 cc. every week or two or three weeks may be determined. It may be well to note the effect in individual patients of histaminase given by mouth.

GLOMUS

To the Editor:—What is the glomic or glomus system? Is there any relationship between the glomus system and a glomus tumor?

M.D., Brooklyn.

ANSWER.—According to definition (Webster's New International Dictionary, ed. 2, 1939, unabridged), the anatomic glomus is any coil or small plexus of blood vessels, specifically one in relation to the pronephros. The term glomus has been applied anatomically to the carotid gland (glomus caroticum) and to the coccygeal gland (glomus coccygeum), which belong genetically to the chromaffin system, and to the glomus choroideum, the extensions of the choroid plexus into the lateral ventricles of the brain. The last mentioned anatomic use is in closer agreement with the root significance of the term.

Peripheral, i. e. cutaneous, arteriovenous anastomoses constitute other anatomic structures to which the term glomus has been applied and which in the aggregate are described as the glomic system. Popoff's study (*Arch. Path.* **18**: 295 [Sept.]

1934) of this system should be consulted. He has described the anatomic structure of the glomus as composed of (1) the afferent artery, (2) the Sucquet-Hoyer canal (the arteriovenous anastomosis proper), (3) the neuroreticular and vascular structures around the Sucquet-Hoyer canal, (4) the outer lamellar collagenous tissue and (5) the primary collecting veins. Masson (cited by Popoff) in 1924 described small subungual benign tumors, clinically painful, which he considered to be genetically related to the peripheral arteriovenous anastomoses. These he designated "glomic" tumors.

GONORRHEAL PROSTATITIS AND ARTHRITIS

To the Editor:—A man aged 31 has had joint pains with swelling, heat, tenderness and redness for six weeks following prostatitis. The joint involvement was multiple at first but for the past three weeks has been confined to the left ankle, thus suggesting a gonorrheal origin. Prostatic smears have thrice shown gram-negative extracellular diplococci. The patient's temperature was consistently elevated from 99 to 101 F. for several weeks, muscular pains were noted, good relief was obtained from the use of salicylates in moderate doses and the sedimentation rate with the 1 cc. Cutler tube has been consistently 28 to 32 mm. in one hour, thus suggesting rheumatic fever. As an aid to differential diagnosis, can the elevation of the sedimentation rate be due to gonorrheal prostatitis and arthritis? Will salicylate therapy give relief in gonorrheal arthritis? Will a complement fixation test be of any real diagnostic value? In determination of the sedimentation rate with the 1 cc. Cutler tubes should 0.1 or 0.2 cc. of sodium citrate be used, and what should be the strength of the solution? M.D., Minnesota.

ANSWER.—The sedimentation rate can be elevated in gonorrheal arthritis and prostatitis.

Salicylate therapy often gives relief in gonorrheal arthritis.

A complement fixation test for the patient will tell no more than is already known, as gram-negative diplococci have been found. However, such a test of the blood of this man, who presumably has specific infection of the prostate and seminal vesicles associated with metastatic and joint involvement, most certainly would have given a strongly positive complement fixation.

For determining the sedimentation rate most laboratory manuals suggest the use of oxalated blood. This may be used in any of the various tubes. One drop of a saturated solution of potassium oxalate is enough to prevent the coagulation of 8 to 10 cc. of blood.

EXCISION OF A SEBACEOUS CYST OF THE CHEEK

To the Editor:—I am interested in the cosmetic aspects resulting from the excision of a wen in the right cheek, about 1 to 2 inches from the angle of the mouth, when approached from the inside rather than the outside. I have mentioned this to a number of surgeons, but none have ever had the experience of approaching one from the inside. Could you refer me to any literature? J. B. Thompson, M.D., Needham, Mass.

ANSWER.—A sebaceous cyst could be excised from the inside of the mouth if it was on the cheek, but it would be preferable to excise it from the outside although the scar might be greater. A sebaceous cyst is usually associated with an occluded sebaceous duct and it is usually considered wise to excise this occluded sebaceous duct with the cyst, taking a small ellipse of skin. It would seem that there would be less likelihood of recurrence if it was operated on from the outside than from the inside. Moreover, the danger of infection in the operative wound is less from the outside than from the inside.

EFFECT OF ANTEPARTUM NUTRITION ON CHILDHOOD GROWTH

To the Editor:—What role does antepartum nutrition play in childhood growth? Has antepartum nutrition any bearing on the high number of rejections in the army?

Howard O. Brush, M.D., Port Huron, Mich.

ANSWER.—While relatively little has been written on the subject, antepartum nutrition undoubtedly influences the future growth of children. It certainly has a bearing on their health at least during the first year or two of life. Dr. J. H. Ebbs (The Influence of the Antepartum Diet on the Infant, *Am. J. Dis. Child.* **62**:416 [Aug.] 1941) reported on the infant mortality of a group of adequately fed Toronto mothers as compared with a poorly nourished group. The difference in infant mortality was so much in favor of the well fed group that the life of a baby could be figured in dollars and cents worth of groceries. According to his figures, an infant's life was worth about $215. It is also well known that, since the deciduous teeth are formed before birth, much of their quality is dependent on the nutrition of the mother.

Whether this has anything to do with the high number of army rejections is problematic, since account of many new factors must be taken.

CARCINOMA OF THE LIVER

To the Editor:—I recently had a case of primary intracanalicular carcinoma of the liver. Would you kindly let me know the incidence of this new growth and refer me to any reports in the literature?

M.D., Virginia.

ANSWER.—Descriptive terms used to indicate the histogenic or histologic varieties of primary carcinoma of the liver do not include the (intra) canalicular form. This does not imply that the cells in a carcinoma of the liver with a hepatocellular structure may not produce bile canaliculi, the ultimate divisions of bile passages which in liver tissues lie between contiguous parenchymal cells. In the large bibliography cited by G. Herxheimer (in Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1930, part 1, vol. 5) no title includes the (intra) canalicular form. The generally accepted forms of primary carcinoma of the liver, expressed in terms of histogenesis or cellular differentiation, are "liver cell" and "bile cell," each as the names imply with a cell structure repeating liver cell pattern or bile ducts (Loesch, Johann: Primary Carcinoma of the Liver, *Arch. Path.* **28**:223 [Aug.] 1939).

ASYMPTOMATIC CONGENITAL SYPHILIS

To the Editor:—A girl aged 13 years, asymptomatic, congenitally syphilitic, has been treated since the age of 8. The first course covered two years and consisted of alternating series of ten neoarsphenamine and six bismuth injections with no rest periods. At the end of this time the serologic reactions were persistently 4 plus. A subsequent series of fifty injections, alternating neoarsphenamine and bismuth compounds, was given after one year, with no change in the serologic reaction. During the current year another series of treatments consisting of two courses of ten injections of mapharsen, with an interposed course of six iodobismitol injections, has been given. The Wassermann reaction remains steadfastly 4 plus to date. Is further heavy metal therapy indicated? What is the probability of the condition becoming active in the event of future marriage or pregnancy?

M.D., Indiana.

ANSWER.—It probably would be advisable to give the girl further bismuth therapy, and two series of ten injections each a year for the next three years might well be planned. If further treatment is necessary at the completion of this course, arrangements might be made for it then. There is a possibility that in a girl of this age the disease might become active later on in life or possibly following pregnancy. Interstitial keratitis will occasionally develop in a young woman following birth of a child, although she has been asymptomatic for many years previously.

OIL FOLLICULITIS

To the Editor:—There is a condition in a local plant for which you might give me some help. The plant is making steel shells with a copper band around the base. The shells are machined in oil. Lately the men have been having what they call oil pimples or oil boils. They work in oil up to their elbows and wash it off with a solvent when they stop work. Most of the pimples are more or less superficial, but among 20 to 25 men working in a small area there have been a number of deep infections. I should like to know: What can be done to eliminate these oil pimples or boils? Can one man with a virulent infection of the skin contaminate the solution so that others using it become infected? Edgar N. Mendenhall, M.D., Fort Wayne, Ind.

ANSWER.—The condition described, "oil pimples," is an oil folliculitis and is a common occupational dermatosis among workers with oil, such as machinists and machine tool operators. Numerous oils and emulsions are used in this process, and it is improbable that any one oil is at fault. Oil folliculitis, or, as it is sometimes called, cutting oil dermatitis, has been discussed rather well in a recent bulletin, No. 244, November 1941, of the Massachusetts Division of Occupational Hygiene, 23 Joy Street, Boston, in which the treatment and prevention are carefully outlined. It would seem probable that the oil could be contaminated and if recirculated without sterilization could cause infection in persons working in it.

PREVENTION OF FORMATION OF CALCIUM OXALATE STONES

To the Editor:—Can you give me information regarding methods for preventing the formation of calcium oxalate renal calculi?

Ralph H. Kuhns, M.D., Los Angeles.

ANSWER.—Less is known about the formation of calcium oxalate renal calculi and the prevention of their recurrence than is known about any other type of renal lithiasis. Defects in metabolism apparently are the cause of stones composed of uric acid and cystine. Oversaturation with a low threshold to calcium phosphate is often present in the formation of calcium phosphate stones. All these forms of renal calculi are definitely

affected by dietary intake. Alkalization and acidification of urine also are factors in preventing the formation of cystine and calcium phosphate stones. Reduction in the intake of calcium is a large factor with calcium phosphate stones. It has not been demonstrated, however, that there is a low threshold of calcium oxalate in patients who form these stones. Their formation cannot be prevented by acidification or alkalization of the urine.

Dietary precautions are more indefinite with oxalate stones than with any other type. Since only approximately 15 mg. of oxalic acid is excreted in twenty-four hours by the person with an ordinary diet, it would seem advisable to maintain a high urinary output. The elimination from the diet of vegetables containing a high content of oxalic acid, such as rhubarb, spinach and tomatoes, would also be indicated. This regimen would tend to prevent the formation of calcium oxalate in a concentration sufficient to allow its precipitation in the urinary tract. Fortunately, the incidence of recurrence with calcium oxalate stones is somewhat less than that with stones of other chemical constituents.

CLOSTRIDIUM WELCHI CARRIERS

To the Editor:—Recently a death was caused by a surgical wound infection. A culture was made of one of the assistants' stools; it was found positive for Clostridium welchi. The doctor has had an increase of gas in the bowels for many years but never suspected that it was anything but a harmless parasitic infection, such as Giardia lamblia. Please give the treatment for a carrier of Clostridium welchi who is a physician. Please give any medical references on treatment. What would be the best antiseptic for the hands besides a free use of soap and rubber gloves to protect others from accidental contamination? M.D., New York.

ANSWER.—Clostridium welchi is a normal inhibitant of the intestinal tract of adults (Zinsser, Hans, and Bayne-Jones, Stanhope: Textbook of Bacteriology, ed. 8, New York, D. Appleton-Century Company, 1939, p. 624). It is no more feasible to try to free the intestine of Cl. welchi than it is to free it of Bacterium coli. Cl. welchi is ubiquitous in nature and requires suitable conditions for growth such as necrotic tissue. Strains vary as to the toxins they produce. Good surgical asepsis and the wearing of sterile rubber gloves during surgical operations are important in reducing operative infections.

PREGNANCY AND BLOOD GIVING

To the Editor:—Should a pregnant woman in good health give blood for the Red Cross? In case there is no objection during the beginning of pregnancy, please state the time after which it would be no longer advisable. Walter Shiftan, M.D., Albion, N.Y.

ANSWER.—There is a tendency of many pregnant women to have at least relative anemia during pregnancy. Frequently iron preparations are given to counteract this tendency. The removal of blood would deprive the woman of essential minerals and food materials which she has secured by elaborate metabolic processes. Her first duty is to herself and to her unborn child. It is advised that she do everything possible to maintain her health and not do anything which might impair it. An emergency, such as an abortion, a placenta previa or a postpartum hemorrhage, might arise. Under such a circumstance she might need the blood to protect herself. Hence blood donation would be ill advised. There are many persons other than the woman who could spare the blood with less possibility of harm to themselves.

STRING TEST IN DIAGNOSIS OF GASTRO-DUODENAL ULCER

To the Editor:—What is the consensus among gastroenterologists as to the value of the string test in the diagnosis of gastric and duodenal ulcer? W. G. Richards, M.D., Billings, Mont.

ANSWER.—In 1909 Einhorn described the string test as an aid in the diagnosis of peptic ulcer. Briefly stated, it consists in the recognition of a blood stain on a string which has been introduced into the stomach and the duodenum. The appearance of the stain presumably indicates the presence and the level of an ulcerative lesion. Described before the era of modern roentgenologic technic, the test is of only slight corroborative value and has not been adopted or recommended by gastroenterologists. The objective diagnosis of peptic ulcer and the differentiation of benign and malignant ulcerative lesions of the stomach are much more valid when based on the evidence provided by roentgen examination and gastroscopy.

References:

Einhorn, Max: Value of the String Test in the Diagnosis of Peptic Ulcers, *Rev. Gastroenterol.* **6**: 386 (Sept.-Oct.) 1939.

Einhorn, Max: Further Experiences with the String Test, THE JOURNAL, Nov. 15, 1919, p. 1509.

PREGNANCY AFTER REMOVAL OF MALIGNANT TUMOR

To the Editor:—In June 1941 I removed a mass from the axilla of a white woman aged 32. The pathologic report on this tissue was malignant lymphoma. Since that time I have seen the patient frequently and as yet have seen no evidence of recurrence. She came to me recently, and I found her to be two months pregnant. I checked her thoroughly at this time and found that she had gained 6 pounds (2.7 Kg.) since the last examination. The red cell count was 4,800,000 and the hemoglobin content 85 per cent (Sahli). There was no evidence of disease in a 6 foot roentgenogram of the chest. The blood pressure was 110 systolic and 80 diastolic, and urinalysis showed no abnormalities. I should like your opinion as to how this patient should be handled. Should pregnancy be interrupted, or should she be allowed to go to term? M.D., Mississippi.

ANSWER.—There is little evidence that pregnancy would cause the recurrence of a tumor of the type stated or stimulate its growth should it recur. As the site of the growth is remote from the uterus and its contained fetus, there would be no contraindication to the use of radiation therapy. There is, of course, the possibility of a recurrence, with the resultant disability and shortening of life expectancy. This would deprive the baby of its mother, but there seem to be no medical indications for termination of the pregnancy. It is suggested that the patient be allowed to continue with the pregnancy but that future pregnancy be avoided.

LENTICULAR ASTIGMATISM

To the Editor:—Many eyes on refraction show astigmatism unaccounted for by the corneal astigmatism present. It is assumed that this is lenticular astigmatism. I have recently read that the optical system of a living eye with a contact lens in place, on refraction, shows no astigmatism. Is this true? If true, does it not disprove any effective lenticular astigmatism? J. J. Horton, M.D., Buda, Texas.

ANSWER.—Probably the soundest as well as the simplest discussion on astigmatism is to be found in Tscherning's Physiological Optics, reprinted by Keystone in 1920, chapter IX, page 138. The literature to which reference is made that no astigmatism is to be found when a contact glass is in position is unknown to us; quite the contrary, in a rather extensive experience in fitting contact glasses several cases have been found that required either a spectacle lens before the eye or a cylindric lens ground into the contact glass to correct lenticular astigmatism. Far better proof of the existence of true lenticular astigmatism is furnished by the Helmholtz measurements with the ophthalmophakometer.

SHIN SPLINTS

To the Editor:—I note in The Journal, April 11, 1942, an inquiry by Paul T. Perugini of New Rochelle, N. Y., concerning "shin splints" and your reply, quoted from Thorndike: Athletic Injuries. I do not consider Dr. Perugini's listed symptoms as typical of "shin splints", nor is his age group or the type of athletic endeavor engaged in likely to produce them. There have been a considerable number of similar cases at the Kansas City Athletic Club which I consider to be due to improper ankle support. Average persons between the ages of 35 and 55 who engage in games like paddle tennis, handball, badminton and squash are adapted to the ordinary heel of a street shoe and when they resume competitive sports they are not elastic enough to adjust themselves to the flat heelless tennis or basketball shoe without some evidence of strain. Treatment of this disability consists in a good toe lace, high top basketball shoe. Half-inch sponge rubber lifts should be worn underneath the heels until the patient can find he can play without the symptoms. Ankle wraps should be worn by any adult playing a vigorous competitive game and having any type of leg symptoms. The majority of professional athletes in their prime wear ankle wraps, yet the occasional athlete will not take the trouble to use them. The best ankle wrap is a 2 inch wide linen bandage, 5 yards in length, wrapped in a figure of eight manner about the ankle. I do not consider these leg aches a counterindication for exercises. Garrett Pipkin, M.D., Kansas City, Mo.

FAMILIAL AND HEREDITARY CATARACT

To the Editor:—In The Journal of April 18, 1942, section of Queries and Minor Notes, there is a letter from "M.D., Missouri" regarding the advisability of having children in a family known to have congenital cataracts. The case in point is that of a young man who has no cataracts himself but whose mother, maternal uncle, sister and brother have congenital cataracts. The answer states that "it would certainly be the part of wisdom for this young man to refrain from having children." While congenital cataracts may be transmitted by several types of inheritance the majority are transmitted as typical dominant characters and the genealogy of this family, such as it is, would put it in this group. Accordingly, unaffected individuals of this family would not transmit cataracts to their offspring. This might be checked in this family by ascertaining whether or not the unaffected maternal aunts and uncles showed congenital cataracts in their offspring. I presume they did not. In my opinion, it would be entirely safe for the young man in question to have children ad lib. David G. Cogan, M.D., Boston.